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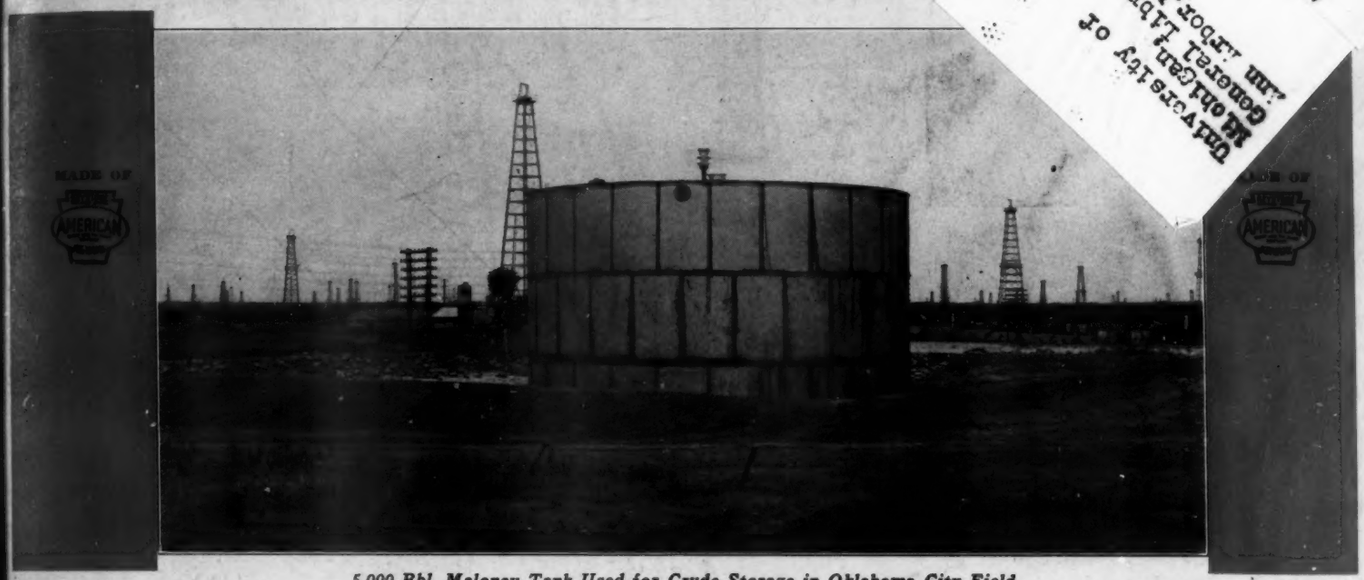

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East Texas Output Below 400,000 Bbls.

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Stabilization of Crude Oil Production Should Strengthen Gasoline Market and Be Reflected in Higher Crude Prices

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

With production in East Texas held to a figure below the 400,000-barrel mark and the possibility the allowable there may be reduced further to bring the output down to 350,000 barrels, operators believe fields in Oklahoma curtailed or shut in by martial law will soon be opened and the State permitted a maximum production of 546,000 barrels daily. The Oklahoma fields should be opened under the agreement ratified by officials of Oklahoma, Texas and Kansas. If, within 10 days or so after the fields are opened, the price of crude oil is not satisfactory to state authorities, the allowable could be reduced and this policy continued until a better price is posted.

Oil men are not satisfied with the enforcement of martial law in the Oklahoma City Field. It is said a large quantity of crude has been produced in violation of the shutdown order. Col. Cicero Murray, cousin of the governor, in charge of martial law enforcement, maintains an office within easy access to the Oklahoma City Field and should be conversant with conditions there.

The industry should be convinced by this time Texas authorities have the situation in East Texas well in hand and that the output there will not be permitted to exceed 400,000 barrels daily. When fields in Oklahoma are opened, production for the country as a whole still will be below the figure estimated as necessary for requirements during the remainder of this year. The crude oil market is in a strong statistical position which should be reflected by an improvement in posted prices.

The gasoline market is strengthening to some extent as refiners begin to realize the crude oil production situation has been stabilized and that the output will continue to be held to or below market requirements. A stronger gasoline market will help the crude situation materially and will remove another objection to raising crude oil prices.

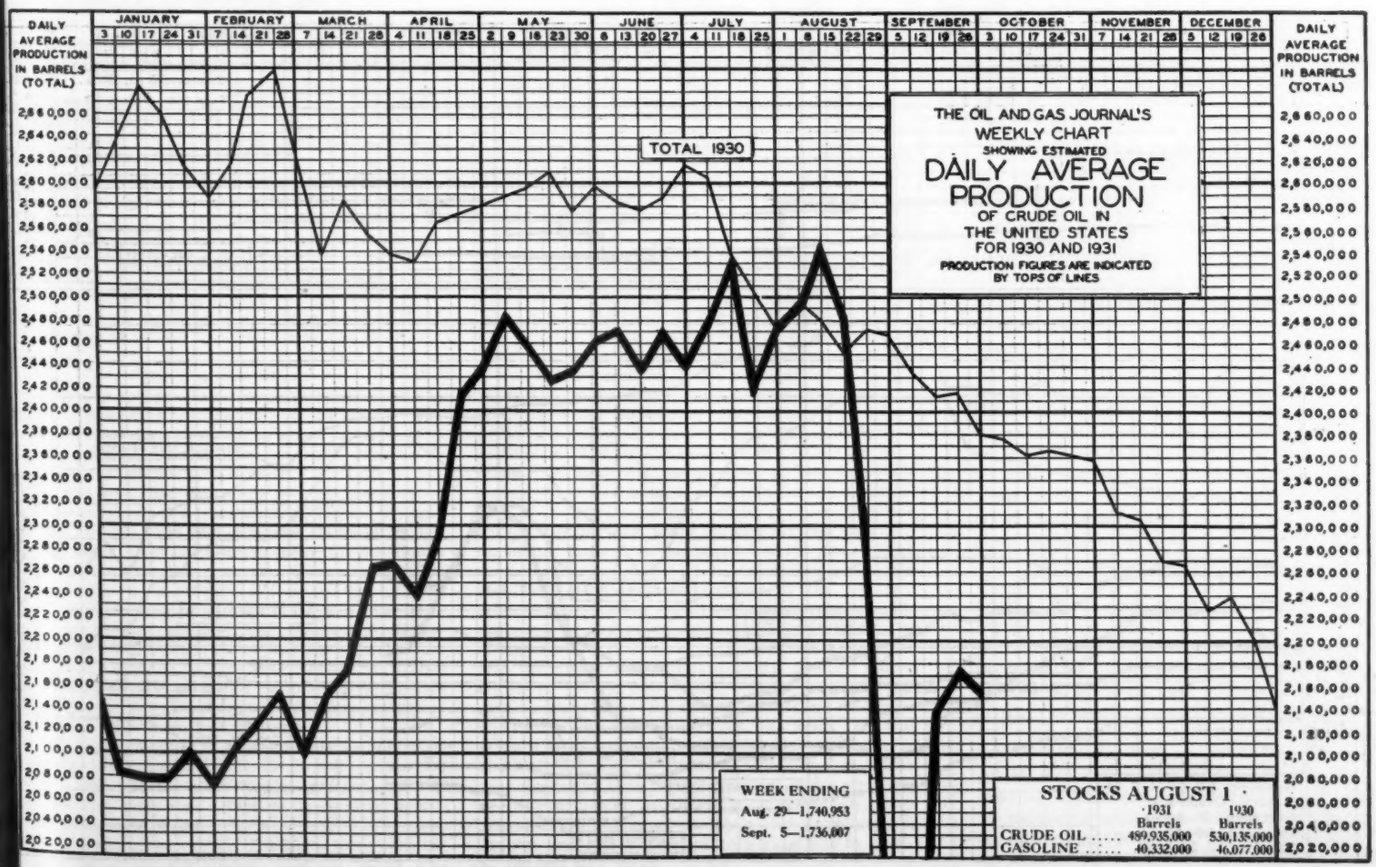
Conditions are showing considerable improvement and oil men are beginning to feel the worst is past and that recovery, while gradual, will be steady from now on.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended September 26 and a comparison with the previous week follows:

	Sept. 26	Sept. 19
Oklahoma—		
Oklahoma City	8,395	4,250
Seminole-St. Louis	59.810	56 710
Remainder of State	195,630	196,985
Total Oklahoma	263,835	257,945
East Texas—		
Kilgore	155.032	167.848
Lathrop	101,046	100,303
Joiner	141,234	151,274
Total East Texas	397,312	419,425
West Texas	202.906	204,496
North Central Texas	77 216	77,484
Texas Panhandle	67,141	65,529
East Central Texas	57 844	57,112
North Louisiana	29,195	29.715
Arkansas	38,090	38,045
Kansas	107,715	107,930
Total Mid-Continent area	1,241,254	1,257,681
Gulf Coast	146.135	144,446
Southwest Texas	63,094	61,953
Eastern	115,000	111,000
Rocky Mountain area	91,190	93,014
California—		
Santa Fe Springs	60,750	61,750
Long Beach	77,000	79,000
Playa Del Rey	21,000	21,000
Elwood	25 250	25,750
Kettleman Hills	62 000	65,750
Remainder of State	255,250	258,250
Total California	501,250	511,500
Total United States	2,157,923	2,179,594

→ **Decrease, 21,671 Bbls. Daily** ←



Some Improvement Noted in Gasoline

Oklahoma Refinery Quotations on Motor Fuels Strengthen Slightly First of Week. Minor Changes in Other Products

By C. O. Willson

Following a steady decline in prices throughout the greater part of September, the month was brought to a close the first of the week with a slightly improved feeling in the Oklahoma (Group 3) refinery gasoline market. There was no unanimity of opinion among market observers as to the probable trend through October although several were willing to hazard the prediction that with a continuance of posted crude oil prices at present or higher levels, the gasolines would regain part of the market losses of September. This prediction is based on the assumption that additional refiners will find it necessary either to shut down their plants or curtail their operations due to their inability to operate profitably and pay the present posted prices for crude oils.

That this development is under way was indicated from scattered shut downs in the Mid-Continent during the past week. The head of one Oklahoma company in shutting down one of its plants located in the Texas Panhandle frankly stated that the action was taken due to the fact that crude oil prices at the plant were out of line with the returns obtainable from the plant operation. This announcement indicated that the company's second plant located in Oklahoma would be shut down in the near future unless conditions improved. At least a half dozen additional plants mostly in inland Texas have been shut down for the same reason. In some cases the owners are continuing to operate their cracking plants with stocks accumulated during the summer months.

If these curtailment programs spread and continue long enough and the crude oil prices are not lowered, it is safe to conclude that the proper balance between gasoline supply and demand will be reached and spot gasoline prices at Oklahoma and other Mid-Continent and middle western refineries will strengthen. This reduction in refinery operations would also bring about a better current statistical situation in the other refinery products some of which need a reduction in supply due to a slow demand. The prices for these products in Oklahoma are practically unchanged from last week.

Retail Markets

In addition to the uncertainty regarding the next development in the crude oil situation, market observers are pointing to the unsettled conditions in the tank wagon and service station markets as in part the cause of the unsatisfactory refined market in the Mid-Continent during the past month. The recent completion of two gasoline pipe line projects with a combined capacity of 50,000 to 60,000 bbls. daily connecting Mid-Continent refineries with large consuming points in the Middle West has not tended to strengthen retail markets. Although the owners of these lines are classed among the major independent refining organizations and are accustomed to carry on all phases of their operations in an orderly manner their programs of expansion in tank wagon and retail sales at points conveniently served by the new pipe lines, have unquestionably disturbed major refiners and marketers already established in these areas and contributes to a competitive condition which is reflected in all markets extending from the crude oil at the wells to the filling stations. In trade circles this retail market situation is held responsible for the fact that tank wagon and service station prices were not advanced in August when refinery gasoline prices with the aid of a crude oil production shut down, advanced approximately 3 cents a gallon. While it is felt that this condition will right itself at this time it is the controlling factor in all markets and many of the trade look to improvement in that end of the oil business before any permanent upturn in the refinery and crude oil markets is possible.

Earlier in the year it was felt that conditions in tank wagon and retail markets would improve if the operations of the "price cutters" could be curtailed. The third grade gasoline was introduced to bring this about and reports of in-

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REFINED MARKET BAROMETER

A slump in gasoline prices for export movement overshadowed in importance any development in the domestic market during the past week. The export prices were advanced several weeks ago following steady increases in the domestic market. It has been impossible to maintain these quotations in the face of Russian and Rumanian competition and prices again declined the past week. The domestic gasoline market at refineries continues unsettled with prices lower at many points than they were a week ago. The exceptions in regard to refinery gasoline were fractional advances in California quotations. Natural gasolines continued firm. A seasonal increase in kerosene was reported at several points with price ranges unchanged. The only weakness reported in fuel oils was in the Gulf and East Coast areas where competition for business has resulted in a lowering of prices at Gulf points. Furnace oils are more active. No important changes were noted in lubricants and wax.

Mid-Continent—Refinery gasoline prices lower than week ago with tendency toward firmness first of week. Natural gasolines firm. Kerosene unchanged. Low cold test fuel oils and furnace oils firm. Fair demand for high cold test and U.G.I. gas oils. Lubricants firm. More inquiries for wax.

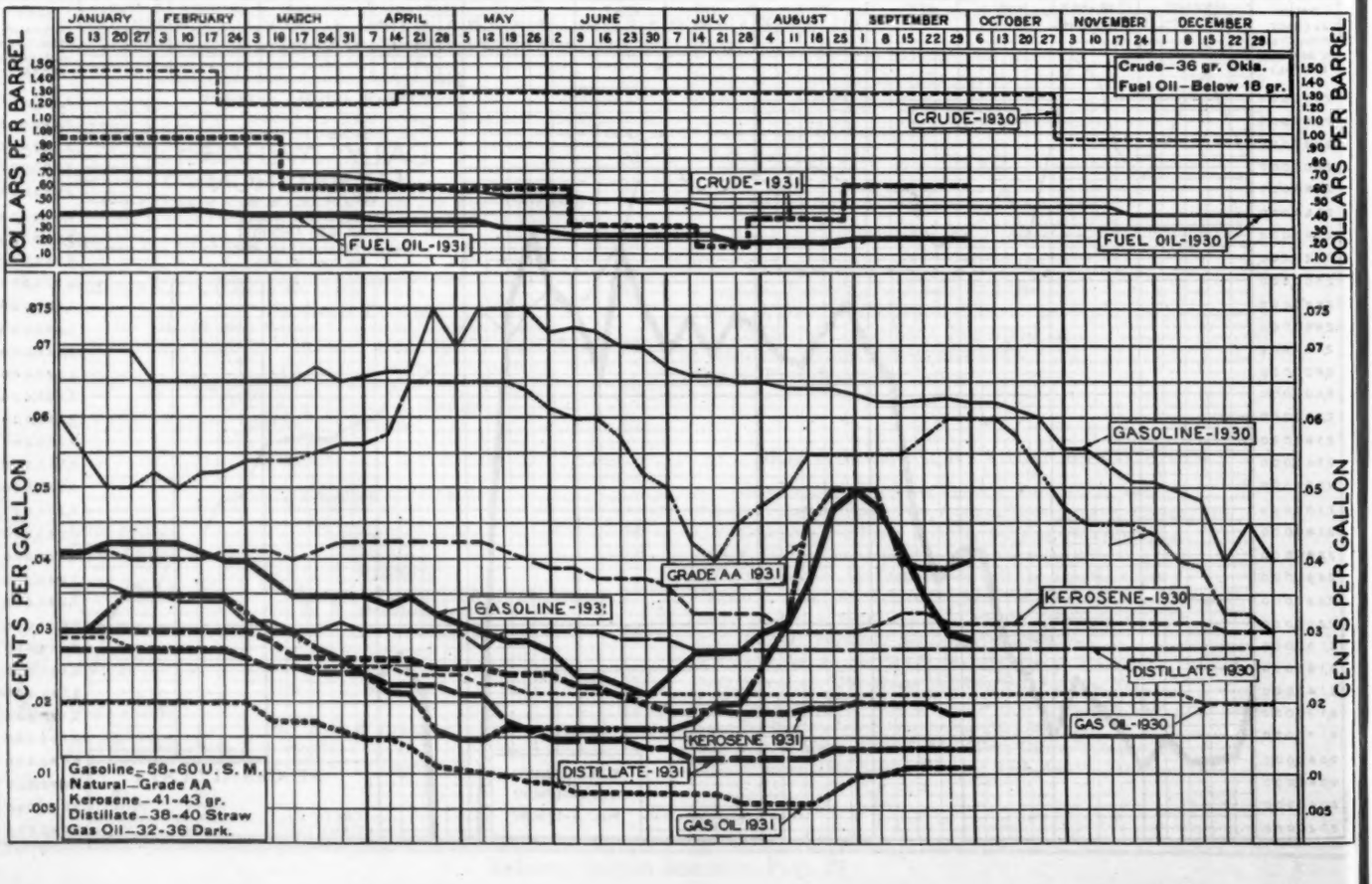
East Coast—Gasoline export prices reduced. Weaker tone in domestic gasoline market. Kerosene demand stronger. Demand for furnace oil increasing. Fuel oil sluggish. No price changes in lubricants and wax.

Chicago—Gasoline prices lower with scattered reductions in tank wagon and service station schedules. Kerosene weak. Lubricants firm. Better demand for gas oils and fuel oils.

Gulf Coast—Better demand for pale and red oils. Export gasoline prices reduced. Price concessions in Bunker fuel oils.

Pennsylvania—Prices generally unchanged. Gasoline spot market weak.

California—Refiners advance prices on gasolines. No other price changes.



Operators Urge Higher Crude Oil Prices

Low Gasoline Quotations Not Justified. Were Twice as High a Year Ago When Statistical Position Was Not as Good

By Andrew M. Rowley

Oil men are determined higher prices for crude oil are warranted and justified by present conditions and must be announced within the very near future if stabilization of production, finally achieved by producers, is to continue. This view was expressed during the past week to The Oil and Gas Journal by individual producers, officials and executives of large operating companies and men who are in close touch with conditions in East Texas and elsewhere.

Those who have worked hardest to hold production of crude oil more nearly to market requirements know the strong opposition which has been manifest against this plan during the past four years. Official adoption of the plan by state authorities of Oklahoma, Kansas and Texas marked a culmination of these efforts, started in April, 1927, when The Oil and Gas Journal in its famous editorial entitled "It Can Be Done" urged oil men to get together to consider the problem of overproduction and take steps to remedy this evil.

State Intervention

Naturally, there was no thought at that time of state intervention. The present activity of politicians in the oil business is due partly to the difficulty in making effective voluntary agreements and partly to legal inhibitions which prevented the individuals and companies from doing that which the State could do. While state governments have achieved that which oil men could not accomplish under existing laws, it is problematical whether activity in the oil business of state office holders or those connected with state governments will be beneficial to the petroleum industry in the end.

But, stabilization of crude oil production has been accomplished and producers feel they are entitled to their reward. Delay in obtaining this reward in the form of better prices is viewed by many operators as a breaking of faith with them.

The Oil and Gas Journal was informed last week a tense situation exists in East Texas. One prominent and active operator in Texas called the writer over long distance telephone last week and said: "We are sitting on dynamite down here. Operators in East Texas claim they were promised fair prices for their crude oil, prices above the present posted schedule, and if increases are not forthcoming soon, it is very likely an especially active movement against proration and curtailment of production in that area will be inaugurated."

Such action naturally is to be deprecated for any weakening of the present curtailment program would be followed by even lower crude oil prices. But there is a feeling among operators they should have fair prices and many have shown in the past they are not always guided by what is best for their own interests.

Low Gasoline Prices

Low prices for gasoline are given by some as the reason crude oil prices cannot be increased. The question naturally arises, "Why don't refiners raise gasoline prices?" It is said too much gasoline is being offered on the spot market.

The Oil and Gas Journal's records show there was just as much gasoline being offered on the spot market at this time last year as there is at the present time; that the refinery price for Oklahoma gasoline this time last year was 6¼ cents a gallon whereas now it is between 2¾ and 3 cents; that gasoline stocks are nearly 6,000,000 bbls. less than they were at this time last year; that crude oil production is 220,000 bbls. daily less than during the corresponding week of last year; crude oil stocks are 40,000,000 bbls. less; and the price of 36 gravity crude in the Mid-Continent at this time last year was $1.29 while now it is 62 cents.

With more gasoline in storage, just as much offered on the spot market, crude oil production higher, and crude oil stocks far greater, refinery gasoline last year was selling at more than double the price quoted today.

The statement was made if refiners were sure the present crude oil curtailment program would continue effective for at least 30 days, the price of gasoline would go up. Governor Sterling has given assurance there will be no wasteful production in Texas as long as he is governor and that East Texas' production will be held to within 400,000 bbls. daily with every effort being made to keep it down to 350,000 bbls. It is said the Railroad Commission of Texas now is considering issuing a new order limiting production of wells in East Texas to 150 bbls. each in order to hold production of that area to 350,000 bbls.

State intervention has done one thing—it has ended the doubt which usually existed regarding voluntary agreements as to whether the operators would carry out the agreement.

It is probable some action will be taken shortly to open the fields of Oklahoma shut down or curtailed by martial law. Even after that State is opened and even should it produce its maximum allowable of 546,000 bbls. daily, crude oil production in the United States will still be below the figure estimated as necessary to fill requirements during the remainder of this year.

Oklahoma Field Rumors

Ugly rumors have gained wide circulation in Tulsa regarding production from wells in the Oklahoma City Field which were supposed to be, or should be, shut in by martial law. The claim is made one well has been producing 10,000 bbls. daily. It has been known for a long time a number of wells in the Oklahoma City Field had connections leading off from under the gate valves. In fact there was published in The Oil and Gas Journal of June 18 a photograph showing such connections, the picture having been taken by one of its staff men. As the Oklahoma City Field is supposed to be shut in entirely, except for wells just completed, through the martial law edict of Gov. William H. Murray, enforcement of which is under the direction of Col. Cicero Murray, a cousin of the governor, oil men in Oklahoma are quite interested in the rumors afloat. It is understood an investigation of conditions in the Oklahoma City Field is being made by oil men interested in that area.

Oil men generally feel that since Oklahoma has agreed to the plan of holding production in Oklahoma, Kansas and Texas and the remainder of the United States to a predetermined figure, the time has come when the oil fields of Oklahoma should be opened and martial law lifted. One plan suggested is that Governor Murray should open the fields now because of the agreement entered into by commissioners of Oklahoma, Kansas and Texas. Then, if a satisfactory crude oil price is not obtained within a short time after Oklahoma pools are opened, the commissioners of the three states can reduce the allowable production as they deem necessary in order to obtain the price they feel is justified.

Demand Proration of Oil Imports

Secretary Lamont Tells Three-State Delegation He Will Present Their Plans to Importing Companies

By C. E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Sept. 28.—The plan of representatives of the governors of Texas, Oklahoma and Kansas for proration of imports of oil has been laid before Secretary Robert T. Lamont of the Department of Commerce and the secretary stated that he would call these plans to the attention of each of the importing companies referred to by his visitors.

After receiving statistical information concerning imports both from government sources and from some of the oil companies, Thurman Hill, of Topeka, Kans., chairman of the governors' committee and member of the Public Service Commission of Kansas, accompanied by Wirt Franklin, president of the Independent Oil Men's Association of America, called on Secretary Lamont and presented the following letter embodying their views:

The committee appointed at the oil stabilization conference held at Oklahoma City, Okla., on September 11, 1931, for the purpose of enlisting your assistance in securing a reduction in the importation of crude oil and its refined products into the United States, beg leave to recommend that the importing companies be requested by you, during the remainder of 1931 and as long thereafter as the stabilization program is enforced by the principal oil-producing states, to forego completely the importation of any refined products or by-products of crude oil into this country, and that the importation of crude oil be limited to an amount not in excess of 140,000 bbls. daily. In line with the program approved by representatives of all the principal oil-producing states at the Oklahoma City conference restricting the total domestic production of the United States to 2,379,000 bbls. daily, it is further suggested that these importing companies, who are the principal producers in Mexico and South America, be requested to limit the production in Mexico and South America to a total not in excess of 531,000 bbls. daily.

In view of the great emergency now existing in the domestic oil fields and markets and the serious distress because of unemployment in the oil-producing states, we feel we would be justified in

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TARIFF BOARD TO HOLD OIL HEARING

WASHINGTON, D. C., Sept. 28.—Chairman Harry P. Fletcher of the United States Tariff Commission has announced that a public hearing will be conducted at his office in Washington, October 29, on House Resolution No. 391, introduced in Congress last spring providing a tariff on imports of petroleum and petroleum products.

Chairman Fletcher announced that every phase of the oil investigation will be taken up at the hearing, and all interested will be given an opportunity to state their claims. The resolution on which the hearing is based was introduced by Chairman Willis Hawley of the Ways and Means Committee and passed by the House on March 3, 1931. It provides that the tariff commission make an investigation of the cost of producing crude petroleum, gasoline, fuel oil and lubricating oil in Venezuela, Peru, Dutch West Indies and other countries, which produced at least 2,000,000 bbls. in 1929 and 1930. The investigation was authorized for the specific purpose of determining the difference in cost of producing crude and refined products in foreign countries and in the United States.

Production Men Consider East Texas

Drilling and Production Practices, Equipment, Safety and Other Topics Feature District Meeting of A.P.I.

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

LUFKIN, Tex., Sept. 26.—East Texas is getting most of the attention in the industry at the present time, due to its activity and the importance it is assuming. The Southwestern district of the American Petroleum Institute, Division of Production, which held its yearly meeting in this city Thursday and Friday, turned nearly its whole attention to East Texas, the problems it presented to the production departments and engineers, and how these problems might be solved co-operatively by the members of the district and the companies operating in the fields. Four of the six papers read at the meeting pertained to the East Texas fields, while practically all discussions were on subjects which were connected with producing practices in those fields. The majority of the men attending the conference were from East Texas, while the Gulf Coast was represented by a few and West Texas by only two or three. Louisiana and Arkansas also had a few representatives.

Approximately 200 men attended the meeting, A. E. Cudlipp, S. A. Pounds and E. E. Hess, all of the Lufkin Foundry & Machine Co. at Lufkin, greeting those registering.

E. Stanley Durward of the Shell Petroleum Corp., Dallas, presided at the meeting Thursday morning. John Ritter of the Sun Oil Co., Dallas, presided at the afternoon meeting, and Blaine Johnston, vice president of the Simms Oil Co., Dallas, presided at the second day's meeting, September 25.

W. C. Trout

President and manager of the Lufkin Foundry & Machine Co., who entertained oil men attending the Lufkin meeting.

The first paper presented at the meeting was "Developments in Arc Welding as Applied to the Oil Industry," prepared by J. C. Lincoln, chairman of the board of the Lincoln Electric Co. of Cleveland, Ohio, but given by C. K. Rickel, who represents that company in Texas and who is head of the Big Three Welding & Equipment Co. of Fort Worth. This paper was published in the September 24 issue of The Oil and Gas Journal. Slides were used at the meeting to illustrate arc welding methods as applied in the fields on tanks, machinery, pipe lines and other repair or construction work, and questions propounded to Mr. Rickel were readily answered, clearing up problems which had to be considered in everyday work of the production men and engineers where welding was needed or had been done. Presentation of this paper, and the discussion of arc welding consumed the entire morning.

At noon those in attendance were transported in courtesy cars to the Lufkin Foundry & Machine Co. shops, where a group picture was made, and a "Dutch lunch" was served.

Welding Tanks

The first paper read on the afternoon of the first day's meeting was by Edward E. Dillman, engineer of the Wyatt Metal & Boiler Works of Dallas, on "Welding Field Storage Tanks," interesting to production men and engineers but especially to those in the East Texas district due to the fact that so much of this work has been done in the district within but a few months time. Cutting down bolted steel storage tanks in other fields in Texas and shipping them to East Texas for reconstructing has also led to much more tank welding than might otherwise have been done under different conditions. When set up in the new district the tanks were welded in the majority of cases.

"Correct and Incorrect Producing Practices in East Texas" was the title of a paper by Blaine Johnston, vice president of the Simms Oil Co., Dallas. Mr. Johnston's paper covered completion methods and hook-ups on the wells in the district, describing how many are carelessly completed, adding to the fire hazards. Correct practices were then outlined. It may be well to note here that 28 lives have been lost by fires in the East Texas fields in seven months' time, probably the largest toll of life of any field, at least within such a short time.

Group of oil men attending the Lufkin meeting.

The pumping equipment to be used in the East Texas district was touched on in Mr. Johnston's paper, the kind of power to be used on the equipment being the second question to be eventually faced by all producers in the field. Trouble from paraffin in the wells is another problem confronting the producers in this district, methods of removing and keeping down paraffin being brought out in the paper.

Battery Hook-up

Mr. Johnston described the improper tank battery hook-up, citing the fact that it was about as expensive in dollars and cents to make such an improper hook-up as it was to install a modern, up-to-date tank hook-up. An improved tank hook-up was illustrated, showing how tanks should be erected, tank vapor lines, risers and safety screens installed to prevent fires.

Mr. Johnston said the use of second hand material invited future trouble in a good many cases, and stressed the desirability and necessity for specifying A.P.I. standards on all classes of equipment wherever possible. A summary of recommended good practices for East Texas concluded Mr. Johnston's paper.

C. W. Alcorn of the Shell Petroleum

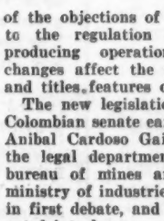
(Continued on Page 87)

Colombia Plans to Liberalize Oil Law

Proposed Modification of Oil Law 37 Eliminates Many of the Principal Objections of American Companies

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Sept. 28.—Disputes affecting Colombian oil fields, which have been a bone of contention in the courts of that country and in diplomatic interchanges between the United States and Colombia for some years past, promise to be settled, according to reports received from that country this week indicating a pending modification of Oil Law 37, removing many of the objections of American companies to the regulation of exploratory and producing operations. The proposed changes affect the private rights, lands and titles features of Law 37.



The new legislation, introduced in the Colombian senate early this month by Dr. Anibal Cardoso Gaitan, former chief of the legal department of the Colombian bureau of mines and petroleum of the ministry of industries, has already passed in first debate, and is expected to be enacted into law.

While the proposed changes to Law 37 do not entirely meet the objections voiced by American companies, nevertheless the new legislation is hailed by the American companies as a step in the right direction.

As one Colombian representative of an American oil company writes to his headquarters office in this city: "As incomplete and lacking in desirable detail as the bill is, it represents a considerable step in advance, as compared to the terms of Law 37, which it modifies."

Salient Features

The salient features of the modifying legislation are as follows:

Article 1 of the bill (covering Article 10 of Law 37), although it cuts the storage period for government royalty oil to three months (from four), actually reduces the yearly rental returns to the operators on government contract only, on stored government oil, from 9 to 8 cents. However, the storage by the private operator of government tax oil that may be purchased by the government is eliminated.

Article 2 of the bill (covering Article 26 of the law), although still maintaining the "brief and summary suit" feature as the outgrowth of opposition made by the owner-possessor of a piece of ground, does provide that such owner-possessor who may lose the decision in said suit has recourse to "the right to exercise the actions and exceptions established by common law in favor of the possessor and owner." These include "amparo de posesion" and other "acciones policivas," and should mean that the owner-possessor can keep the government contractor off his property until he has exhausted all legal means of defenses in the courts.

Article 3 of bill (re Article 27 of Law 37), although retaining the proviso that the owner-possessor who wants to drill must present his "proofs of ownership of the oil," makes more detailed provisions regarding the manner that such proofs are to be handled by the national attorney general, and allows the owner to present any further proofs of ownership to the attorney general that he may wish.

Article 4 of bill (modifying Article 28 of Law 37) removes the "brief and summary suit" proviso as regards private titles to lands whose owners wish to drill thereon (directly or indirectly), and provides that the government may start only ordinary civil suit against said title if the ministry of industries deems that same does not carry rights to oil.

The new article fails, however, to provide that the operator in good faith on private lands later held by the courts to be national, has the first right to a government contract if he wishes it.

Production Tax

Article 5 of bill (re Article 35 of oil law) makes the private lands production tax payable in cash only (not in kind). The rate of tax starts at 4 per cent in the first 100-kilometer coastal zone (as instead of 8 per cent), and is progressively reduced to 0.4 per cent in the zone of over 900 kilometers from the port of outlet. The tax is, however, still payable at the port.

The tax on the production of natural gas and gasoline is reduced by one-sixth as compared to Article 35 of Law 37.

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New Ideas Employed In Laying Pipe Lines Across the Mississippi

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By James W. Haygood*

Because of the several unique features seen in the pipe line construction project which Prairie Pipe Line Co. is completing across the Mississippi River at Fort Madison, Iowa, the writer feels that an account of the methods and procedure on this work will be of interest to readers of The Oil and Gas Journal. The Prairie company is laying two 10-inch river lines at this crossing to augment the capacity of existing lines and to relieve the loads on the lines now in service.

The generally accepted method of laying river crossings in the past has been to weld and lay a single line in one operation and if more lines are to be laid to repeat the first operation until the required number of lines are completed. The equipment usually consists of one or more laying barges, lashed together in tandem or in parallel. In addition a cargo is usually used to carry a day's run of pipe. A tug or other type of power boat is usually employed, in addition to a derrick barge or one equipped with some satisfactory hoisting equipment. Two welders are ordinarily employed working simultaneously at a convenient point near the rear of the barge where the end of the last welded length of pipe extends from the river bend upward and over the end of the barge. Where measures are employed to protect the pipe from deterioration auxiliary equipment is required.

New Idea Employed

The construction of the two 10-inch lines across the Mississippi River at Fort Madison is of special interest in view of the fact that the usual procedure outlined above for laying river crossings has not been followed and a new idea in laying river lines has been put into effect making possible the laying of two or more lines at the same time with the same floating equipment which would be required for the laying of a single line and without the sacrifice of speed.

The disance across the Mississippi River at Fort Madison is approximately 13,000 feet. The lines cross two channels and one submerged island. River clamps are being used on such pipe as may line within the channels, as it is not thought necessary, apparently, to apply clamps over the back water areas. The pipe is an open hearth lapwelded steel one-half-inch wall thickness, weighing 54.735 pounds per foot and was delivered in 40-foot randum lengths. The pipe ends are beveled to 45 degrees and belled to take a heavy "chilled" ring or liners. The preliminary step was to double the length by gas welding sufficient pipe for both lines. This operation was carried out on the right descending bank of the river, acetylene being supplied by portable generators.

While the pipe lengths were being doubled work was proceeding on the floating equipment preparatory to the actual river crossing. The floating equipment used in this crossing consists of the following units:

One 80-foot pipe transport and storage barge.

Two 110-foot laying barges.

One power barge equipped with a boom and steel winches.

One Diesel engine driver stern wheel tug.

Arrangement of Barges

The laying barges were lashed end to end with lines and turnbuckles eliminating unequal horizontal motion. On the deck of the two barges thus lashed together a ramp was constructed of old 8-inch pipe. The ramp inclined so that at the low end it was 6 inches above the barge deck and at the high end the top cross member of the bent was slightly more than 22 feet above the deck. The ramp, as accompanying pictures show, was made up of 10 sections having two 8-inch pipes as uprights and a top cross member of the 8-inch pipe. The bases of the uprights are gas welded to the outside of a half section of 12-inch pipe concave to the deck of the barge. One-inch bolts through deck sills make each bent secure. Further security was obtained by welding connecting braces from bent to bent on either side of the structure so that the entire ramp practically constituted a one-piece frame. Wood floors and guard rails were placed along the length of the ramp top at points where labor activities were concentrated.

On the 8-inch pipe top cross members four 30-pound rails, two for each line, were welded parallel to each other and running the length of the ramp. The rails for each line were spaced to accommodate a 10-inch river clamp. The rails extend 2 feet over the ends of the barges. In the pictures shown here three rails carry each line. The middle rail was eliminated when it became necessary to place the 900-pound river clamps on the pipe at intervals of 40 feet.

Laying the Line

In starting to lay, three 80-foot lengths of pipe were placed between each pair of rails and four oxyacetylene welders, two men to each joint, completed the two welds at the back end of the ramp and about 40 feet from the rear end of the barge. When these welds were completed reinforcing straps were welded over the joints by electric arc welding. The gas welders then moved forward on the ramp and completed the two remaining open joints. When these welds were finished the laying barges were ready for their first move.

With the two lines sliding between the rails a 5-ton caterpillar tractor on the barges and a steam winch on the derrick barge pushed the floating assembly away from the shore a distance of 80 feet bringing the last completed welding joint in position for the application of reinforcing straps and placing the ends of the lines for the welding of another 80-foot length to each. This procedure is repeated at the completion of each pair of gas welds and the setup is such as to prevent lost time in welding on reinforcing straps and, later, bolting up of clamps when the deeper channel water work is completed. The average time between completion of the gas welds and the starting of the next pair of welds is about 11 minutes with 61 to 65 minutes for doing the overhead welding of the joint. In other words, the moving of the barge the required distance, placing of two 80-foot lengths of pipe, completing two gas welds, applying the reinforcing straps and river clamps, is all done in from 72 to 76

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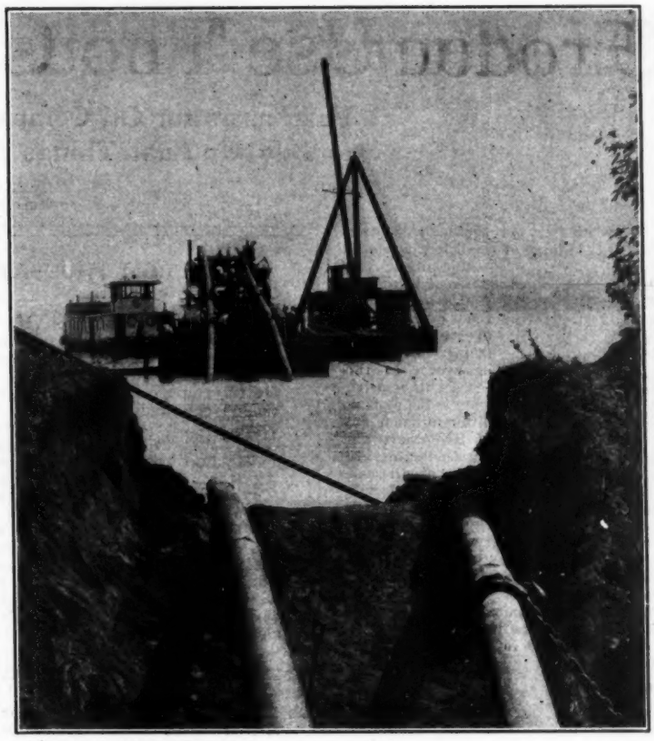

Laying two lines simultaneously across the Mississippi River at Fort Madison, Iowa.

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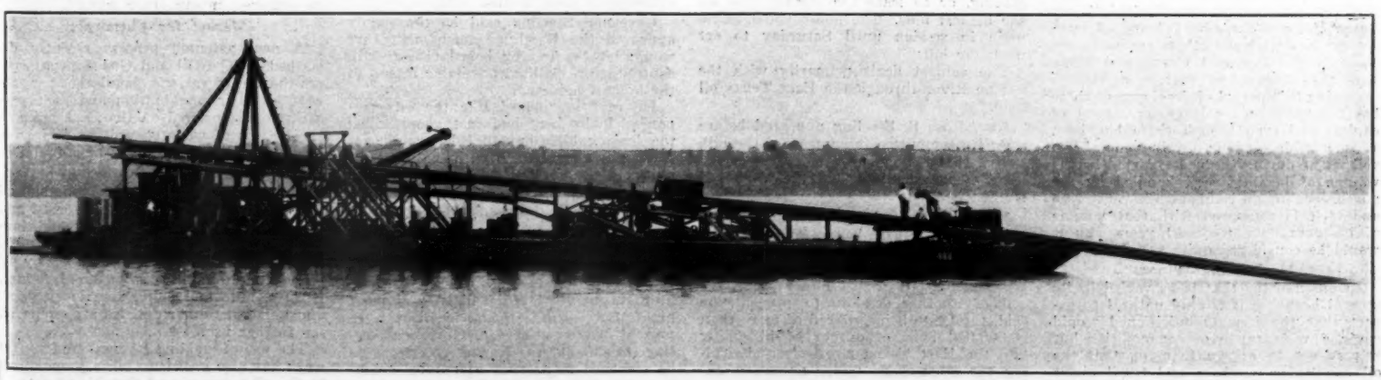

Laying pipe into the Mississippi River from the ramp.

*Service supervisor, Linde Air Products Co., Chicago, Ill.

Oil Men Use Thousands of Commodities

Purchasers for Oil Companies Frequently Called Upon to Buy Unusual Things for the Various Departments

By L. G. E. Bignell
Petroleum Engineering Editor

Every industry in the United States whether it is large or small has developed within itself very efficient buying organizations under the direction of men especially trained in this kind of work. In this respect the petroleum industry is no different from any of the others and purchasing departments of all companies spend huge sums each year, buying practically every class of commodity made from pins to steam rollers.

Petroleum has been rated second in mining and fifth in the manufacturing industries of the United States and it is estimated that there is a total investment of $16,000,000,000 in it divided approximately as follows:

Production	$10,000,000,000
Transportation	2,000,000,000
Refining	3,000,000,000
Marketing	1,000,000,000
Total	$16,000,000,000

National Association

Most of the purchasers for the oil companies belong to the National Association of Purchasing Agents and have within that body their own division, known as the Oil Company Buyers Group, which has a membership of from 150 to 175 who have offices in all of the larger cities in this country from New York to San Francisco. Naturally the majority of the oil companies have their purchasers at the offices located near the large pools, which brings about a concentration of members of the petroleum division of the N.P.A.A. in cities in the Mid-Continent and Pacific Coast.

It has been estimated that the industry in normal years spends about $500,000,000 in exploring and drilling over 20,000 holes to secure new sources for oil. During the past few years there has been a vast amount of money spent in pipe lines for both oil and gas and for refineries and marketing stations.

In addition to the investment in pipe lines there are many thousands of steel tanks used for handling and storing oil and refined products, representing another huge investment in this branch of the industry.

Tank cars also play an important part in transporting crude and its products and there were 152,157 cars in operation January 1, 1931, of which 144,197 were privately owned and the balance are owned by the railroads. There were 1,218 tankers in operation in 1930 handling oil and refined products into United States ports. Some of these boats bring oil from foreign countries and others are operating through the Panamal Canal and along both the eastern and western coasts.

During this period of development there has naturally been a large investment of capital and even though there has been a perceptible alowing up in general development during the past 12 months the volume of business still handled by the purchasers for oil companies is very large and if it is compared with that volume of business done 8 or 10 years ago it would be considered quite satisfactory.

Alcohol and Wipers

In an industry that is as varied in its several branches it is only natural to expect that the items requisitioned would cover a wide range of commodities but it may not be known to many that the oil companies purchase and resell about 40 per cent of all the industrial alcohol manufactured in this country each year.

BUY FROM THOUSANDS OF MANUFACTURERS

Few persons not actively engaged in the buying of supplies and commodities for the petroleum industry realize the great range of kinds of materials purchased. One major company operating in the production, transportation, refining and marketing divisions of the oil and gas industry reports that during the year 1930 it purchased commodities from not less than 8,000 different sources of supplies. The territory covered by this company ranges from the Gulf Coast to Canada and from the Rocky Mountains to Indiana and included about 13,000 outlets for its finished products.

Another company operating only in Oklahoma, Kansas and New Mexico reports that its sources of supplies for this territory numbered about 1,750 during 1930.

From these data it seems very safe to estimate that the buyer for oil companies contacts many hundreds of manufacturers and dealers each year and all purchasers report receipt of many requisitions for material with which they are not familiar which necessitates their making new contacts. The petroleum industry is a very prolific field for the makers and dealers in practically every class of commodity manufactured.

It is reported that the yearly output of industrial alcohol is about 100,000,000 gallons and of this amount the oil companies buy to sell through their filling stations about 40,000,000 gallons as an antifreeze mixture.

After having purchased many millions of dollars worth of expensive machinery and equipment for refineries, pipe lines and production departments it is only natural that there will be some expense in keeping this equipment looking well and it is reported that one of the major companies spent in 1930 about $20,000 for rag wipers. This represents about 636,000 pounds of this material distributed to the various pump stations and other power plants to be used in keeping the machinery clean and bright.

While it is common practice to discard wipers after they become unfit for further use many companies have installed quite elabroate laundries where the rags are washed and reconditioned for further use. This is providing a good market for makers of powered washing machines, and those companies also find a ready sale for their output among the oil field workers, for soiled clothes worn in the oil fields or refineries are hard to clean and housewives naturally desire and secure modern washers to aid them in this work.

Nor is this the only commodity used for keeping things clean for the sale of sponges and chamois skins for filling station use in keeping wind shields and cars bright is a very considerable item every year.

Goats Also Bought

Speaking of chamois skins brings to mind an old classic told among purchasing agents in the petroleum industry that has been going the rounds for a number of years in which the live goats played the important part.

A large refiner in Oklahoma had near the plant a tank farm of considerable size and as the property used was formerly good farming land it was only natural that weeds should grow very fast in the space around the tanks and even over the fire walls and inside the space enclosed by them.

These weeds besides being very unsightly were an actual fire hazard item of expense. The safety department recommended that the weeds be cut or removed and the management approved this suggestion and the refinery superintendent concurred with the idea, but how it could best be accomplished was the important problem.

Someone made the suggestion that goats would eat weeds as well as almost anything else and after some investigation it was decided that a small herd should be purchased and turned loose inside the wire fence surrounding the tank farm and permitted to forage for their food. About the only thing they could get to eat would be weeds and it was reasoned that they would be self sustaining and at the same time keep the weed crop under control.

Having made the decision the next step was to get the goats and this required that formal requisition be made out to the purchasing department for the number and kind of goats needed for the experiment. This was done and the purchaser for that company had a new task to perform and to his credit it can be stated that he bought the goats but in doing so had a number of new experiences. The idea seemed to have proven a solution for the weed problem for there are still a number of goats roaming at will inside the fence around this tank farm and the weeds never seem to give any trouble.

Bricks, Chemicals and Cables

The petroleum industry uses a very considerable quantity of fire brick every year as well as a lot of common brick and tile. Buildings of a permanent character are being built of brick and they are also being used to a large extent in filling stations, pipe line and compressor stations. The industry also uses many different types of tile and stone for trim in these stations for they are usually of a design in keeping with the neighborhood in which they are located.

For all partitions around cracking stills it is now customary to use special air cooled tile which form fire walls and confine any burning materials and in this way restrict the fire hazards and incidentally reduce fire insurance rates.

Around cracking stills and pipes handling hot oils and gases it is now common practice to use cork or other type insulating material and this is becoming a business of major importance to manufacturers of this type of commodity.

Chemical manufacturers are finding a good market with the refining companies for caustic soda as well as many other chemicals. In the production department there is a constant demand for chemicals for dissolving iron and steel parts that have become lodged in wells and cannot be removed in any other way.

Market for Chemicals

A new patented process recently described in The Oil and Gas Journal covers the use of various chemicals to create heat by their combination and melt paraffin wax deposited on the sand faces in the bottom of wells as well as dissolving calcium carbonate deposits also found in the bottom of many wells.

The sale of cleaning compounds and acids, such as muriatic, has increased and this material is used for the reconditioning all kinds of metal. Centrally located cleaning plants are operated by nearly all oil companies and reclaimed valves and fittings, nuts and bolts, machinery parts and numerous other articles are prepared for further use.

The use of welding for new and repair work has also grown to large proportions in the oil industry and the sale of oxygen

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ROW OVER RIVER BED DRILLING MAY EXTEND THE TEXAS SESSION

AUSTIN, Tex., Sept. 29.—The Texas senate late today passed finally the bill to restore state-owned stream beds to oil development, carrying an amendment to permit the State to drill, contract for drilling, or to lease the stream beds on the highest bids. The house voted to remain in session until Saturday to act upon the bill.

The contest dealt primarily with the Sabine River through the East Texas oil field.

Gov. Ross S. Sterling appeared before a senate committee in support of the bill, urging that it be enacted before adjoining lease owners had drained the river bed lands.

Plans to extend the present session were started in both houses Tuesday noon when Governor Sterling served notice on members that failure to pass the river-bed leasing bill would either force the call of another session, to prevent, he said, the State being robbed of more than 20,000,000 bbls. of oil, or of his going into the East Texas riverbeds and drilling the streambeds under executive authority.

"It looks like those talking the lease bill to death were about to put the State into the oil business. I still know how to drill oil wells," he told a delegation of legislators. He said companies had offered to make an arrangement to pay the State its share to avoid 30 offset drillings in East Texas.

Governor Sterling said he thoroughly approved the Rawlings amendment that would let the leasing board either drill, contract for drilling or make leases to the highest bidders.

He said it "looked like the oil companies' lobby here had just about killed the leasing bill" but that he would not personally charge them with the responsibility.

Representative J. R. McDougald of Beaumont Tuesday said Governor Sterling told him Tuesday morning that the legislature will be recalled immediately in a new special session to pass the river bed leasing bill talked to death by Senator Margie Neal in a filibuster Monday night. Several other house members were present in the conference. Governor Sterling insists that the leasing of river beds be reopened to prevent companies draining the oil under the Sabine and other streams in the East Texas Field.

Mixing Natural and Coal Gas to Supply The City of Chicago

* * * * * *

By H. E. Bates
The Peoples Gas Light & Coke Co.

Natural gas from the Texas Panhandle is delivered to Chicago at two points, one on the southeast side of Chicago, and the other on the west side of Chicago. A 24-inch line on the southeast enters the city limits at One Hundred Thirty-eighth Street and Brainard Avenue and continues inside the city limits a distance of 6.03 miles to the Calumet station of the Peoples Gas Light & Coke Co. located at Ninety-eighth Street and the Calumet River. Another line on the west side of the city enters the city limits at Pershing Road and Cicero Avenue and continues inside the city limits a distance of 1.25 miles to the Crawford Avenue plant of the Peoples Gas Light & Coke Co. located at Thirty-fifth Street and Crawford Avenue.

These two distributing points, which are 15¾ miles apart, deliver gas into a 48-inch transmission line extending across the south and west side of the city of Chicago to the city limits on the north, a distance of approximately 34 miles. The Calumet station also feeds a 36-inch transmission line extending north and south on the east side of the city of Chicago, a distance of 28½ miles.

* * * *

The Calumet station is the central receiving point of approximately 70,000,000 feet of coal gas which is purchased from industrial concerns located in the South Chicago district. The Crawford Avenue station has a coal gas plant of 24,000,000 feet daily capacity, and a water gas plant of 40,000,000 feet daily capacity.

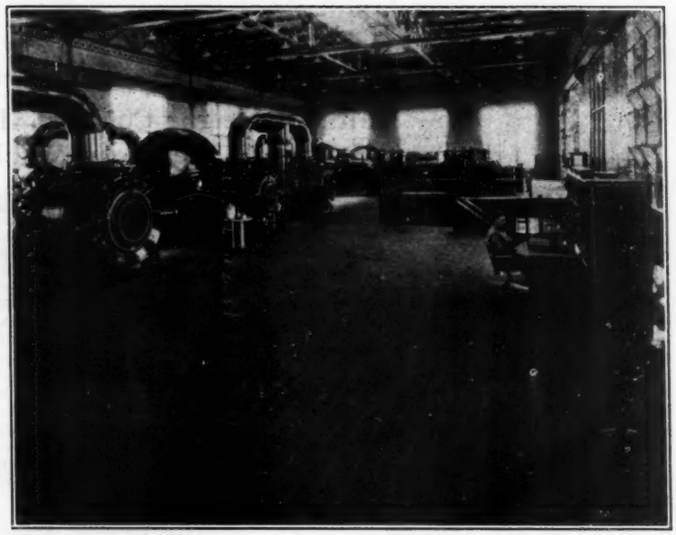
The base load delivered to the consumers of the city of Chicago will be a coal gas-natural gas mixture with a heating value of 800 B.t.u., the mixture consisting of approximately 45 per cent coal gas having a heating value of 550 B.t.u. and approximately 55 per cent natural gas having a heating value of 1,000 B.t.u.

When peak load conditions are such that the coal gas-natural gas mixture is not sufficient to provide the total peak load requirements the water gas capacity at Crawford Avenue will be utilized to produce water gas which will be mixed with natural gas.

Pressure Requirements

The total output of the Calumet station of 800 B.t.u. gas will reach a maximum of approximately 155,000,000 feet per day when the full deliveries of purchased coal gas amounting to 70,000,000 feet are received and mixed with natural gas. This will more than double the maximum output of this station under a 530 B.t.u. standard and will require a maximum pressure of approximately 25 pounds per square inch to deliver 155,000,000 feet per day to the transmission system of Chicago. The maximum pressure requirements under a 530 B.t.u. standard without natural gas was approximately 7 pounds per square inch, so it was necessary to build a new compressor station at Calumet station.

The maximum output of the Crawford Avenue station under a 530 B.t.u. standard is approximately 65,000,000 feet per day and it is not expected that this will be exceeded for several years so that the present pumping capacity can still be used. However, within the next two years, it is probable that the increased pressure of the transmission system, resulting from the large output of the Calumet station, will result in increased pressure requirements at Crawford Avenue, even though the total output may not have increased. When this condition exists, pumping capacity for the increased pressures required must be installed.



Operating floor of new Calumet Compressor Station showing two electric driven units in left foreground, two gas engine driven units in rear, and control board.

* * * * * * * *

Mixing of Gases

Natural gas will be delivered to the Crawford Avenue and Calumet stations at sufficient pressure so that it may be delivered into the transmission system without repumping. The coal gas which is mixed with the natural gas will be compressed to a pressure equal to that of the natural gas entering the transmission system and then mixed with natural gas.

The mixing of the natural and manufactured gas is accomplished by means of a Smoot gas mixing control.

Description of Control

The Smoot gas mixing control consists of two proportioning butterfly valves linked together in the same angular position, one in the coal gas line and one in the natural gas line, one Smoot high pressure balanced valve in the natural gas line ahead of the butterfly valve, and two Smoot regulators operated by natural gas, one operating the butterfly valves and one the high pressure balanced valve. The regulator operating the balanced valve is equipped with a motor unit for remote adjustment of the loading of the regulator.

The pipe carrying the compressed coal gas and the pipe containing natural gas are located one above the other so that the two butterfly valves can be readily linked together and to the regulator. The operation of the equipment is as follows:

The regulator operating the butterfly valves is set by means of a tension spring to maintain a given differential across the coal gas butterfly valve. This differential depends upon the rate of coal gas delivery. If, for example, the rate of coal gas delivery increases, the differential across the coal gas butterfly valve increases, this unbalances the regulator which acts to restore the set differential by opening the coal gas butterfly valve more. Since the two butterfly valves are linked together, a movement of the coal gas butterfly valve produces a corresponding movement of the natural gas butterfly valve. The change in the position of the natural gas butterfly valve produces a change in the differential pressures across it which differential is impressed upon the regulator operating the high pressure balanced valve in the natural gas line. Since this regulator is also set to maintain a given differential across the natural gas butterfly valve, this regulator operates to restore the set differential by opening the bal-

(Continued on Page 30)

One end of the Calumet station.

Another view of the Calumet station.

Titusville Men Drilled in China in 1877

First Foreign Contract Interesting Document. Head Hunters in Area Near Well Kept Things From Being Dull

By F. F. Murray
Titusville, Pa.

On September 4, 1877, two men and a cargo of tools, going in opposite directions, started on a far journey from Titusville, Pa., site of the famous Drake well, and headquarters then in matters relating to the young petroleum industry. The men went westward to San Francisco and on across the Pacific, while the cargo went eastward to New York and across the Atlantic, and men and cargo were not to be in contact again until, between them, they had circled the globe and were landed in the borderland of the Headhunters, back from the West Coast, in the island of Formosa.

The travelers were A. P. Karns and Robert D. Locke, both of Titusville, and the cargo was of tools and equipment for sinking the first well to be drilled for petroleum in China or its possessions. China previously had utilized petroleum from dug wells and seepages in different parts of the empire, but this was its first drilled well. When the American drillers, who had worked under many handicaps, left Formosa in October, 1878, an American flag, made by wives of the soldiers from pattern and material supplied by Mr. Locke, waved from the derrick over a well they had succeeded in drilling to a depth of about 400 feet. In spite of almost continuous cavings below the casing, it would produce 6 or 8 bbls. a day of a grade of petroleum described as of about 45 Be. gravity and not unlike the average production of Pennsylvania crude in color and appearance.

Substantiated by Diary

Mr. Karnes died a number of years ago, but Mr. Locke, hale and hearty, is still a resident of Titusville. He possesses an exceptional memory, and in the case of the Formosan experience his recollections are substantiated by a diary in which he made almost daily jottings from the time of his departure until his return. The writer has had the pleasure of reading this diary and has drawn from it, and the recollections of Mr. Locke the facts of the present article. In detail, the antecedents of the enterprise would entail too long a story, but the high points were these:

The first missionary sent to China by the London and British Foreign Missionary Society was Rev. Robert Morrison, a Scotchman, whose work was done with such discretion that he became a medium of strong influence with the Chinese authorities. His activities extended to the Island of Formosa, and one of the ways he was honored there was by giving his name to its highest mountain. (When Japan took over the island after its war with China, the name was changed from Mount Morrison to Niitaka Yama, or New High Mountain, as it now appears on the maps.) As the work of the Rev. Mr. Morrison grew, he required an assistant, and a New England minister, a Rev. Mr. Brown, was sent to him in this capacity. Later the Rev. Mr. Brown adopted, reared and educated two Chinese boys, out of different families, as companions for his son. The boys thus adopted, Tong King Sing and Young Wing, became apt students with practical ambitions. Through his studies, Young Wing progressed to the head of a school for Chinese established at Hartford, Conn., and supported by the Chinese government, while Tong King Sing became in China the head of the semi-governmental agency, the Chinese Merchants Steamship Co.

In his position as head of this strong

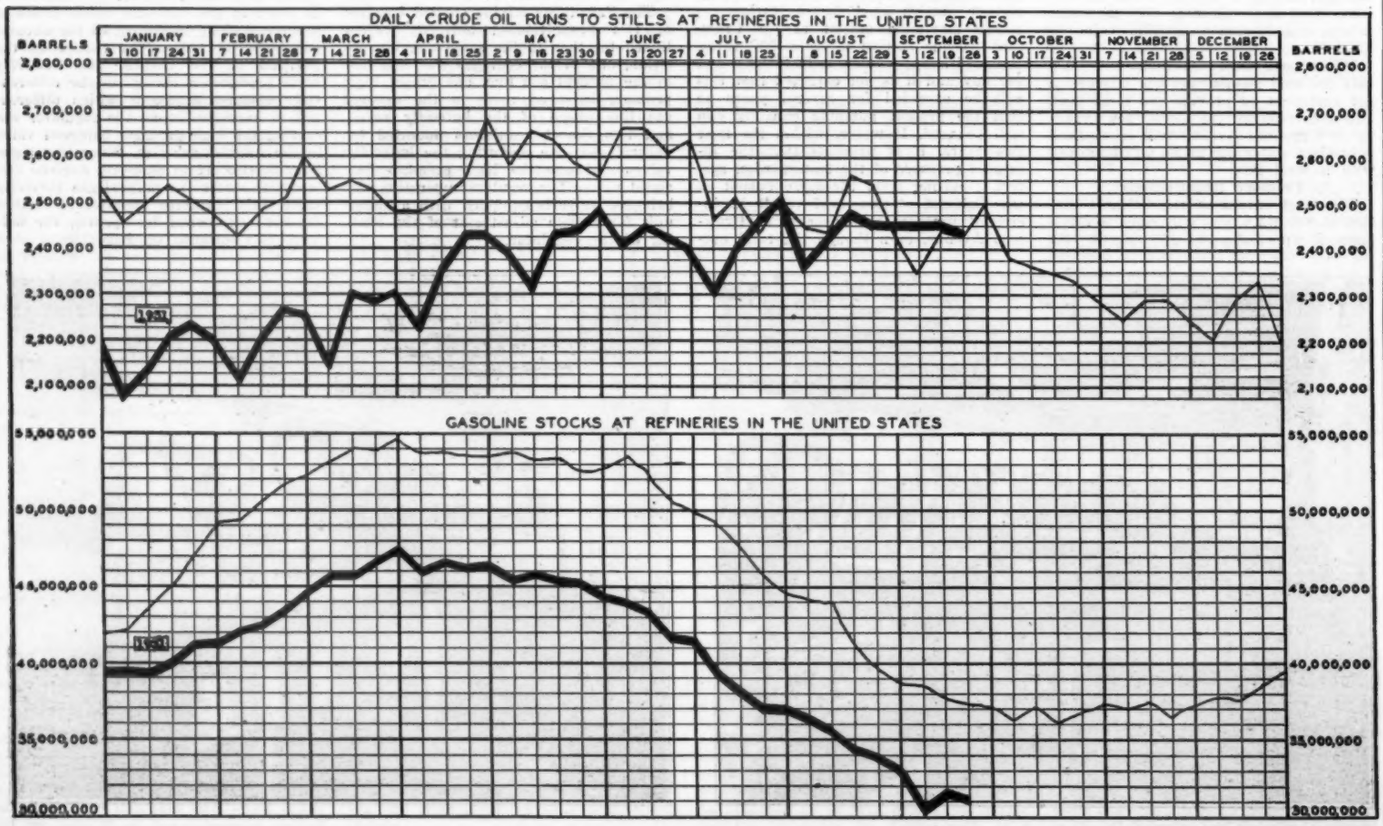
(Continued on Page 106)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending September 26.

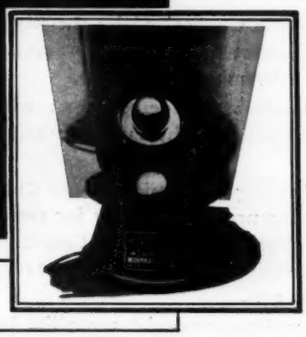
	Week ending September 26, 1931				Week ending September 19				Week ending September 27, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	499,000	3,702,000	10,821,000	100 0	497,300	3,935,000	10,799,000	100.0	508,100	5,301,000	11,562,000
Appalachian	91.8	104,300	1,260,000	1,604,000	91 8	112,300	1,209,000	1,585,000	91.8	82,000	1,079,000	1,115,000
Indiana, Illinois, Kentucky	98.9	324,200	3,786,000	4,975,000	93 9	336,500	3,828,000	4,924,000	99.6	288,300	5,558,000	4,419,000
Oklahoma, Kansas, Missouri	89.6	249,100	2,793,000	5,127,000	89 6	282,000	2,715,000	5,236,000	89.3	254,400	2,470,000	4,855,000
Texas	91.3	522,100	5,342,000	11,514,000	91.3	512,600	5,666,000	11,482,000	90.4	595,100	5,969,000	10,651,000
Louisiana and Arkansas	98.9	165,100	833,000	3,458,000	98.9	166,300	749,000	3,304,000	96.8	164,300	1,270,000	2,160,000
Rocky Mountain	89.3	55,900	1,213,000	808,000	89 3	49,700	1,155,000	808,000	93.6	55,900	1,813,000	1,125,000
California	96.5	435,900	11,844,000	97,513,000	96.5	475,000	11,833,000	96,995,000	99.3	553,600	13,762,000	104,892,000
Total United States	95.0	2,355,600	30,773,000	135,820,000	95.0	2,431,700	31,123,000	135,133,000	95.6	2,501,700	37,222,000	140,779,000
Texas Gulf Coast	99.8	393,900	4,133,000	8,155,000	99 8	386,600	4,493,000	8,137,000	100.0	453,300	4,786,000	7,793,000
Louisiana Gulf Coast	100.0	112,300	586,000	2,495,000	100.0	112,000	530,000	2,299,000	100.0	115,600	1,011,000	1,437,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.

Here's the Answer to the HOLLOW BALL Question



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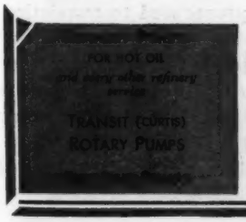

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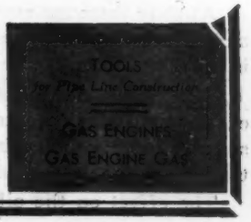

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VIGILANTES NEEDED

The development of the gasoline tax racket during the summer has justified the warning published in these columns last April that unless something was done promptly it threatened the whole market structure.

The North American Gasoline Tax Conference, composed of officials of the various States interested in gasoline tax collection, meeting recently at Denver, reported that tax evasion was already widespread and rapidly increasing.

The seriousness of the situation is emphasized by the fact that it is to be given special consideration at the annual meeting of the American Petroleum Institute in November at Chicago.

Right now the ability of tax evaders to undersell the market is recognized as one of the main obstacles in the way of stabilizing the industry.

The State executive and the leading companies in the Chicago area have been so impressed with the urgent necessity for remedial action that a committee has been appointed to make a thorough investigation of the racket in that district and to take steps for nation-wide co-operation in checking the evil.

The State, the oil companies and the motorist are alike being held up by these racketeers. The State is being cheated of its rightful revenue. The oil industry is having its market structure wrecked by underselling of tax dodged gasoline and the motorist is being deprived of the road improvements, or unemployment relief which the gasoline tax is supposed to assure him.

The profits from the racket have been so attractive that they have been divided with conniving officials with the usual result of widespread corruption as in the liquor racket.

Already there are reports of difficulty in convicting tax evaders and inferential evidence that enforcement of the gasoline tax law is breaking down.

The improbability of conviction and the lightness of the penalty encourage others to enter the racket and what has happened this summer may be but a beginning unless effective steps are taken to root out the cancer before it spreads further.

The effect on the oil market is well known. The refiner, natural gasoline manufacturer or jobber who evades this tax has the advantage of the amount of the tax to undersell his competitors who pay the legal levy.

The distributor whose product is taxed is met with competition which is two, three or four cents lower because it pays no tax.

It used to be said that the amount of tax evading gasoline was very small compared to the total consumption. It is large enough today to have a disastrous effect on the entire gasoline market.

It does not require a very large proportion of price cutting in any commodity market to bring down the whole price structure. There is nothing so touchy as a falling market.

The actual quantity of distress gasoline that broke the market in past years has been a fractional portion of the total consumption but its effect spread so rapidly that the tail was soon wagging the dog.

The gasoline racket is worse than distress gasoline ever was because it is growing so fast and its limits are unknown. It will operate regardless of whether there is any distress gasoline. It is based on a factor wholly outside the oil industry, the ability to evade a tax and to use the advantage thus gained to cut prices below those where the tax is paid.

Originally it was supposed that most of the tax evasion was accomplished through exemptions for supposed agricultural use but in any racket clever crooks soon devise improvements.

The disclosures at Chicago and elsewhere show that there are many ways of evading the tax, including official connivance and protection and as the racket grows into "bigger business" bigger methods may be expected.

One of the effects of cutthroat competition is the blunting of the ethical sense of competitors. Success in evading the tax is likely to lead others into it just as was the case with other practices that led to the demand for a code of ethics to curb them.

"Why should so-and-so get away with it?" has been responsible for many an unethical or illegal act, especially if it was comparatively easy to do it and the probability of being penalized slight.

Even an ordinarily honest and upright man, resenting the unscrupulous methods of a competitor, may, however wrongly, think himself justified in "fighting the devil with fire."

There has undoubtedly been some of this in the oil marketing business which makes it all the more difficult and dangerous to let it go on.

The State governments ought to see the necessity of eradicating the gasoline tax evader for their own sake but the political ramifications may make this a difficult job. The oil industry already sees the necessity for action and should not wait.

As The Oil and Gas Journal said last April something must be done promptly. The Chicago committee is assembling a lot of data that will be of value in formulating a plan of campaign to combat this fraud when the American Petroleum Institute takes it up next month.

Uniform legislation by the states has been suggested, as in many other matters, but that is usually merely postponing action indefinitely. A uniform tax system would undoubtedly be desirable but that it would stop the gasoline racket is not so plain since it has attained its present proportions and threatens to spread.

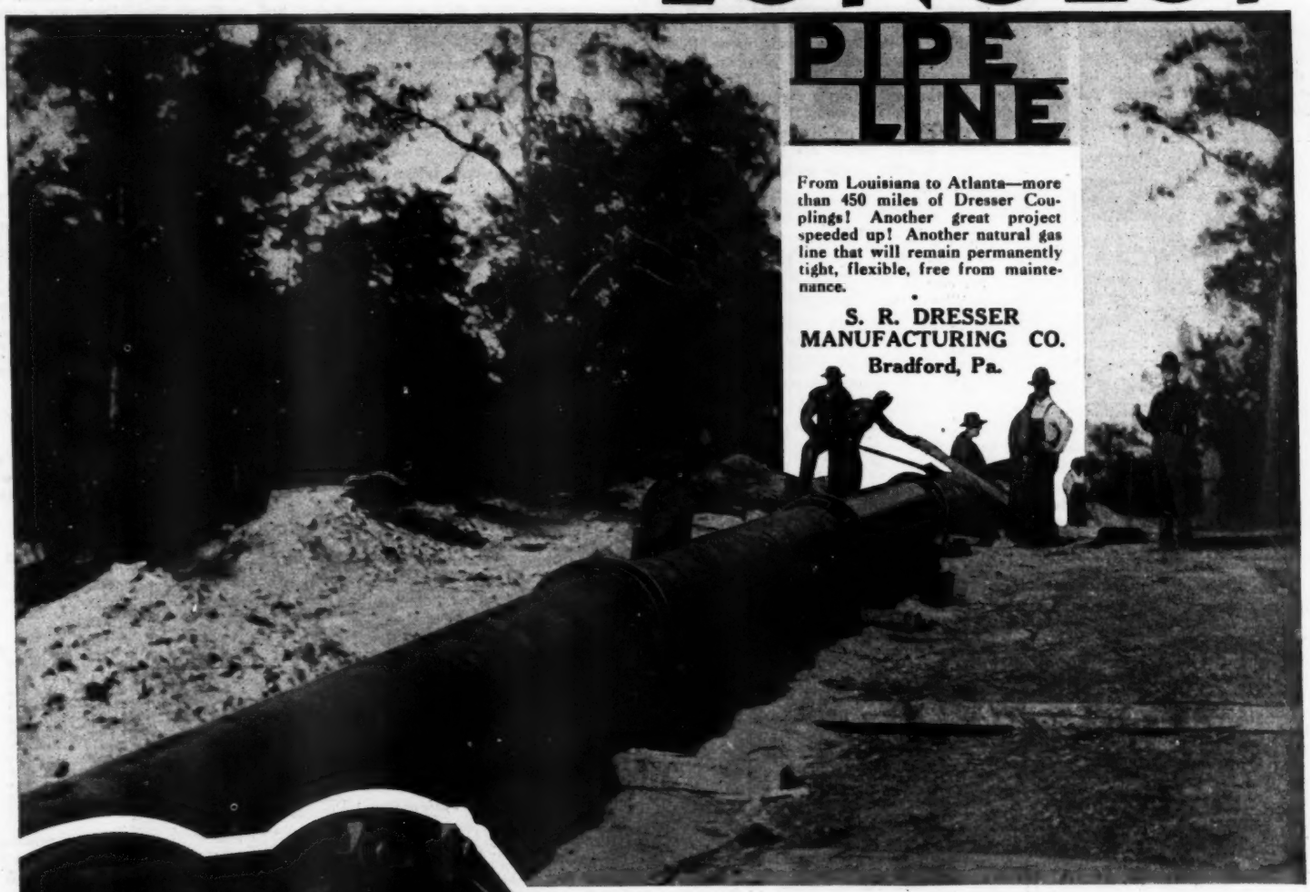
More hope for relief might be placed in vigorous and effective action by the industry itself with a real determination to stamp out the tax evader.

Nation-wide co-operation by the honest units in the business, aggressively vigilant, ought to be able to run down the sources of tax free motor fuel and see that they are prosecuted to conviction. The cost would be a cheap price to pay for rooting out a racket that threatens to become a permanent menace to the price structure.

Resolutions and reports are a poor way of fighting a racket, as the country well knows by this time. Getting right out after them is the only effective method.

The industry has it in its power to clean up this situation if it becomes sufficiently aroused to do it.

On the SOUTH'S LONGEST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ALUMINATE

Peruvian Crudes Vary in Properties

All Grades Refinable With Substantial Yields of Gasoline Obtainable in Combined Topping and Cracking Operations

By Gustav Egloff, E. F. Nelson and Paul Truesdell
Universal Oil Products Co.

The total production of crude petroleum in Peru has been officially recorded by the Peruvian government since 1896 although the industry began long before that date. Official production figures expressed in barrels of 42 U. S. gallons are reported below:

Year—	Bbls.
1896	47,536
1900	274,800
1905	447,880
1910	1,330,105
1915	2,487,251
1920	2,816,649
1921	3,699,280
1922	5,313,854
1923	5,698,510
1924	7,924,700
1925	8,231,328
1926	10,762,393
1927	10,127,432
1928	12,006,000
1929	13,422,000
1930	12,000,000

Northern Peru

The fields of Zorritos, Lagunitas, Negritos, Lobitos, Restin, La Brea and La Breita, in the north of Peru represent almost all the industrially developed sources of Peruvian oil.

Zorritos Field, the oldest of all, is exploited by the Establecimiento Industrial de Petroleo which also operates a small refinery. Oil is obtained from depths of 200-1,700 feet and averages about 38° A.P.I. gravity. It is a mixed base crude with an agreeable odor and shows a green color with yellow bloom. According to Deustua[1], Zorritos crude yields approximately 13 per cent gasoline of 65° A.P.I. gravity, 40 per cent kerosene of 46° A.P.I. gravity, 40 per cent residue of 27° A.P.I. gravity and 7 per cent loss. Sulphur content of this oil is low, averaging .04 per cent.

Lobitos and Restin Fields are operated by Lobitos Oilfields, Ltd., a company which does no refining but exports its crude, mostly to Argentina. Average depth of production for the two fields is 3,000 feet but, on the whole, Lobitos produces from a deeper level than Restin. The crudes from the two fields are similar in properties, both being light oils, of green color and pleasant odor. Lobitos crude averages 35.8-37.9° A.P.I. gravity, slightly lighter than Restin which has a gravity of 34.7° A.P.I. Lobitos crude averages .06 per cent sulphur, while Restin shows .05 per cent.

One Lobitos crude gave the following analysis:

A.P.I. gravity	36 6
Sulphur, per cent	0 02
Init. b.p., °F.	164
End b.p., °F.	714

Per cent distilled over	Temperature °F.
10	250
20	312
30	387
40	453
50	526
60	602
70	665
80	712
90	708
Per cent over at 410 °F.	32 5
Per cent over at 437 °F.	37 5
Per cent over at 572 °F.	56.5
Coke, by weight, per cent	2.0
Wax (Reistle & Blade) per cent	4.59

This crude oil was fractionated with fire and steam to remove the light oils and leave a lubricating oil stock. Results of this distillation follow:

BREAKUP OF CRUDE OIL FOR LUBRICATING OIL STOCK

Per cent		A.P.I. grav.
32 4	Naphtha init. b.p. 152° and e.p. 392°	55.0
13 1	Kerosene	42 0
14.5	Gas oil	36 1
28.5	Wax distillate 2.84% total wax, m.p. 118° F. 19.90% light lub oil, Saybolt Universal viscosity at 100° F. 126 sec. 5.76% medium lub oil, Saybolt Universal viscosity at 100° F. 275 sec.	23.3
9.5	Semisolid steam refined bottoms 1.75% total wax, m.p. 126 °F. 7.36% lub oil stock, Saybolt Universal viscosity at 100° F. 300 sec. (This was an overhead stock since the production of cylinder stock did not look encouraging.)	21.3
9.39%	Coke.	
2.0%	Distillation loss.	

Per cent		A.P.I. grav.
35 5	Naphtha init. b.p. 162° and e.p. 437° F.	53 7
10 0	Kerosene	40.8
14 5	Gas oil	36.1
23 5	Wax distillate as above	23.3
9.5	Semisolid steam refined bottoms as above	21.3
2.0	Distillation loss	

The International Petroleum Co., Ltd., which started its operations in Peru in 1914, is the largest producer and refiner in the country, operating over the territory La Brea y Parinas which covers some 400,000 acres. In this area are included the fields of Lagunitas, Negritos, La Brea and La Breita. Depth of production in the two larger fields—Lagunitas and Negritos—varies from 1,500 to 3,600 feet. These two crude oils resemble Lobitos oil, varying from 35 to 38.45° A.P.I. gravity and showing high gasoline content. La Brea and La Breita are heavier oils of about 18° A.P.I. gravity showing less gasoline. Negritos crude contains about .06 per cent of sulphur, while crudes from La Brea and La Breita average .035 per cent.

Southern Peru

Some production of oil is obtained in two regions of the south, but it is not of industrial importance. In the province of Huancane oil is obtained from depths varying from 120 to 728 feet. Production is mainly from slate and the oil is light and similar in properties to the Peruvian oils from the north. The province of Islayccocha nearby shows seepages of oil which were used by the Indians for illumination and as medicinal aids. This is a light, paraffin base oil but its production has not been developed to any appreciable extent.

Both Huancane and Islayccocha are about 13,000 feet above sea level. Some work has been done by Seyer[2] on the chemical constitution of several fractions of Peruvian petroleum. The test was made on the fraction of Lobitos crude oil boiling between 150 and 350° C. and the following hydrocarbons were identified:

$C_{10}H_{20}$	$C_{17}H_{34}$
$C_{11}H_{22}$	$C_{18}H_{34}$
$C_{12}H_{24}$	$C_{14}H_{26}$
$C_{13}H_{26}$	$C_{15}H_{28}$
$C_{16}H_{32}$	$C_{19}H_{36}$

Some evidences were also obtained of the presence of two lower members of the C_nH_{2n} series—C_8H_{16} and C_9H_{18},—having a pronounced odor of turpentine. Molecular volumes of the group of identified compounds seemed to indicate ring structure with side chains.

More recent work (1928) by the same experimenter on the fraction boiling below 175° C. indicated the presence of C_8H_{16}, C_7H_{14}, C_6H_{12} and C_5H_{10}.

Refining in Peru[3]

Translated from Boletin Oficial de Minas y Petroleo for the year 1928, Direccion de Minas y Petroleo del Ministerio de Fomento, Peruvian Government.

"There are two refineries in Peru, one belonging to the International Petroleum Co., and the other to the Establecimiento Industrial de Petroleo de Zorritos.

"The refinery of the International Petroleum Co., located at Talara, is said to be one of the largest and most complete in continental South America. Its capacity is 15,000 bbls. of crude a day, and it has a storage capacity of approximately 2,000,000 bbls. The plant equipment includes stills operating on the continuous distillation process, special equipment for the re-distillation of naphtha distillates, lubricating oil, and grease units, a plant for the chemical treatment of derivatives, equipment for the recovery of sulphuric acid, and a case plant. In 1926, four cracking units were added. Each of these units has a capacity of 1,800 bbls. of fuel oil a day, from which an approximate yield of 40 per cent of gasoline is obtained. In connection with these cracking installations is a small absorption plant for the recovery of gasoline from residual gases.

"The Establecimiento Industrial de Petroleo de Zorritos operates a small refinery, employing the batch process, at Zorritos. Its capacity is about 1,000 bbls. a day, although it now refines only about 220 bbls. In addition, there is a small unit for the chemical treatment of kerosene. There is a storage capacity of 3,500 bbls. for refined products with about 50,000 bbls. of crude."

Cracking Peruvian Oils

Samples of topped and reduced crude oil from Peruvian crude petroleum were subjected to cracking in an experimental plant by the nonresiduum (simultaneous cracking and coking) method. The yield of cracked gasoline from the topped crude was 62.1 per cent, while that from the reduced crude represented 60.5 per cent. The total 437° F. endpoint gasoline produced from Peruvian crude oil, including straightrun naphtha and cracked gasoline, was 77 per cent of the crude when cracking topped crude oil, and 64.2 per cent when cracking reduced crude oil.

The original Peruvian crude analyzed as follows:

A.P.I. gravity	36.4
Sulphur, per cent	0.15
Initial boiling point, °F.	192
End boiling point, °F.	760

Per cent distilled over—	Temp., °F.
5	236
10	270
20	300
30	366
40	444
50	512
60	592
70	674
80	700
90	708
95	740
Per cent over at 410° F.	35.0
Per cent over at 437° F.	39.0
Per cent over at 572° F.	57.5
Per cent coke by weight	1.3

Five straightrun naphthas were fractionated from the above crude oil, which showed the following distillation characteristics:

Naphtha grades:	1	2	3	4	5
A.P.I. gravity	56.6	55.4	54.7	54.1	52.4
Init. b.p., °F.	144	152	154	156	162
End b.p., °F.	375	392	400	411	437

A. S. T. M. (100 cc. distillation)

Grade:	1	2	3	4	5
% distilled over—	Temperature, °F.				
5	140	195	192	202	204
10	184	209	209	216	220
20	210	226	229	233	242
30	225	240	243	249	257
40	237	253	255	264	275
50	251	266	270	279	295
60	268	279	284	295	314
70	280	296	302	314	338
80	296	314	320	337	365
90	318	340	347	364	397
95	336	366	366	388	418
Endpoint	375	392	400	411	437

The topped crude left after removal of the 392° F. endpoint naphtha was used as cracking stock, representing 67.5 per cent of the raw oil.

The crude oil was similarly distilled, taking off 392° F. endpoint naphtha, kerosene and gas oil and leaving a reduced crude which was used as cracking stock. The product yields from the reducing of the crude oil were as follows:

	%
392° F. endpoint naphtha	32.3
Kerosene	11.0
Gas oil	16.7
Reduced crude	39.8
Loss	1.2

Distillation characteristics of the naphtha, kerosene and gas oil from the reduction of the crude oil are summarized in the following table:

	Naphtha	Kerosene	Gas oil
A.P.I. gravity	55.4	41.9	36.1
Initial boiling point, °F.	152	377	458
End boiling point, °F.	392	544	650
Per cent over—	Temperature, °F.		
5	140	386	487
10	184	393	496
20	210	397	502
30	225	403	508
40	237	410	515
50	251	416	523
60	268	422	532
70	280	430	543
80	296	439	561
90	318	455	586
95	336	480	620
Endpoint	375	554	650
Per cent bottoms	...	1.0	1.0
Per cent at 410° F.	...	40.0	...
Per cent at 437° F.	...	78.0	...
Per cent at 572° F.	...	...	85.0

Cracking Stocks

The topped and reduced crudes used as charging materials for the cracking op-

(Continued on Page 87)

SERIES ON REFINING

The accompanying article is the thirteenth of a series published in The Oil and Gas Journal describing the results obtainable in refining representative domestic and foreign crude oils. Additional analyses of foreign crude oils will appear in a later issue.

Previous articles appeared as follows:

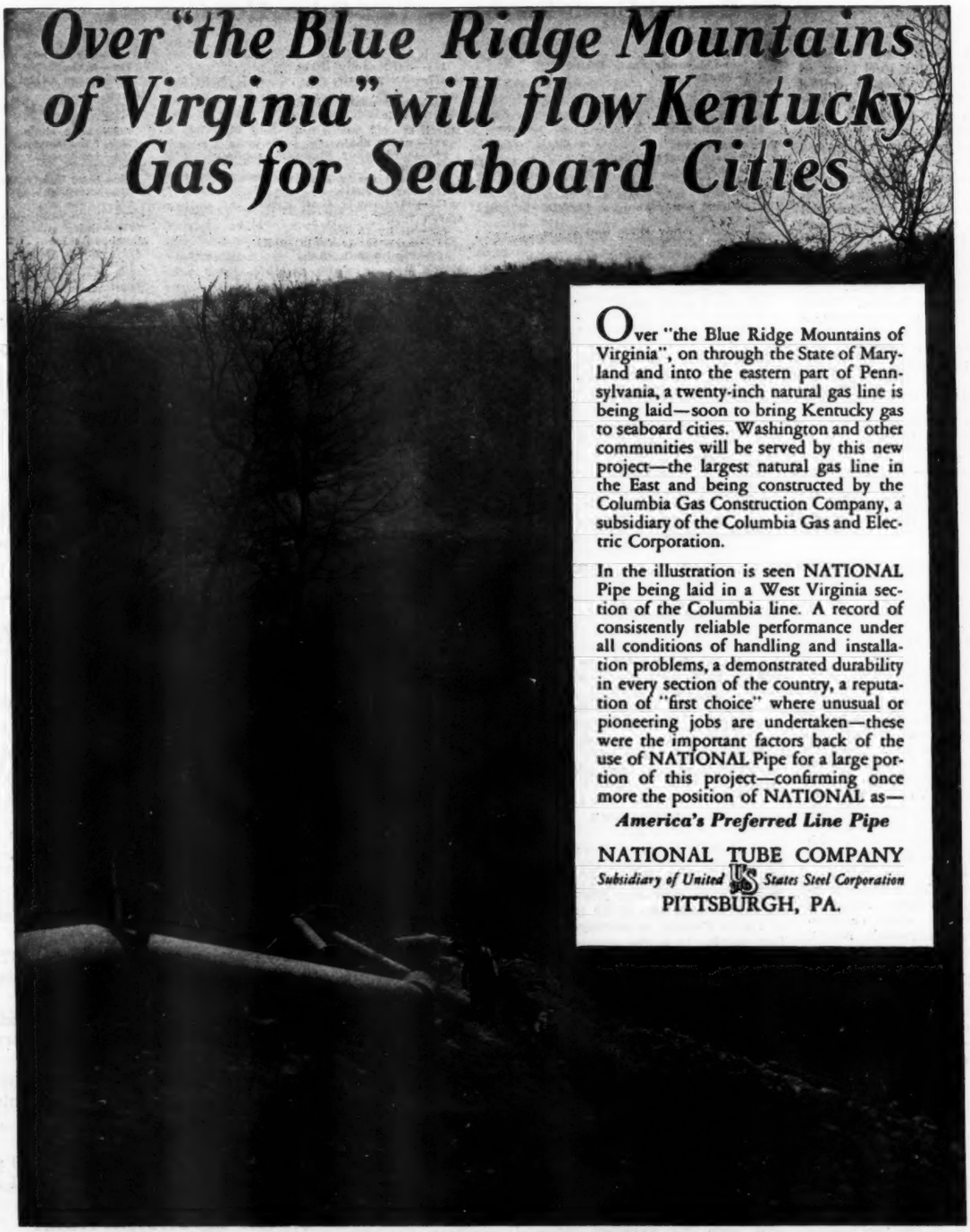
September 3, page 30—Germany.
August 6, page 20—Egypt.
July 23, page 22—Venezuela.
July 2, page 16—Michigan.
June 18, page 22—Van, Tex.
May 21, page 40—Joiner, Tex.
April 23, page 30—"Unrefinable crude oils."
April 16, page 30—Mid-Continent.
April 16, Page 30—Pettus, Tex.
April 16, Page 30—Kentucky.
April 2, page 30—West Texas.
March 5, page 88—Oklahoma City.
February 19, page 30—South Texas crudes.
February 12, page 38—Pennsylvania.

[1] El Petroleo de Peru (1921-22).

[2] Brit. Chem. Abs. B, p. 653 (1926).

[3] Petroleum Refineries in Foreign Countries 1930, U. S. Bureau of Mines.

Over "the Blue Ridge Mountains of Virginia" will flow Kentucky Gas for Seaboard Cities



Over "the Blue Ridge Mountains of Virginia", on through the State of Maryland and into the eastern part of Pennsylvania, a twenty-inch natural gas line is being laid—soon to bring Kentucky gas to seaboard cities. Washington and other communities will be served by this new project—the largest natural gas line in the East and being constructed by the Columbia Gas Construction Company, a subsidiary of the Columbia Gas and Electric Corporation.

In the illustration is seen NATIONAL Pipe being laid in a West Virginia section of the Columbia line. A record of consistently reliable performance under all conditions of handling and installation problems, a demonstrated durability in every section of the country, a reputation of "first choice" where unusual or pioneering jobs are undertaken—these were the important factors back of the use of NATIONAL Pipe for a large portion of this project—confirming once more the position of NATIONAL as—

America's Preferred Line Pipe

NATIONAL TUBE COMPANY

Subsidiary of United States Steel Corporation

PITTSBURGH, PA.

NATIONAL PIPE

Deep Test of Penn-Mex Fuel Corp. Dry

Possibility Well, More Than 2 Miles Deep, May Be Carried Down Further to Test Other Horizons

PITTSBURGH, Pa., Sept. 25.—The deep test of the Penn Mex Fuel Corp. in the State of Vera Cruz, Mexico, drilled to a depth of 10,585 feet in line of other production, stands as a dry hole. There are possibilities that it may be drilled deeper as other interests are willing and anxious to co-operate to drive the hole still deeper to explore lower structures. At various times small showings of oil and gas were met but not in commercial quantities. So far the total cost has been shouldered by the Penn Mex.

The well was started February 24, 1930, by driller W. S. Gattrell under the direction of John Reardon, general manager for the company in Mexico. Other drillers that contributed to the work were J. G. Taylor, H. S. Smith and C. T. Duncan, since deceased. As tooldressers on the rig, were E. S. Blackman and Jack Reardon.

The log of the well follows:

LOG JARDIN NO. 35
Elevat on 75 Feet
Derri-k Floor
1930

Date, depth and status—
February 24:
90 ft. surface. Cemented 90 ft. 22-in. ID stove pipe with 29 bbls. cement.
Started rotary 5:00 p.m. with 21½-in. hole.
122—shale.
124—sandy shale.
130—gray shale.
147—ha d sandy shale shells.
155—shale.
February 25:
197—sandy shale.
202—shale.
212—hard sandy shale.
February 26:
215—hard sandy shale.
224—shale.
February 27:
248—hard sandy shale and shells.
272—hard sandy shale and shells.
February 28:
274—hard sandy shale and shells.
276—lime shells.
286—hard sandy shale and shells.
296—sand rock.
March 1:
297—sand rock.
305—hard sandy shale.
306—sand rock.
308—hard sandy shale.
311—shale.
March 2:
314—shale.
324—hard sandy shale.
327—shale.
328—shell.
333—sandy shale.
334—hard sandy shale.
March 3:
336—sandy shale.
337—shell.
342—hard sandy shale.
344—shell.
345—shale.
March 4:
351—hard sand.
352—hard sand.
356—hard sandy shale.
March 5:
364—hard sandy shale.
377—sandy shale.
378—shale.
380—hard sandy shale.
381—shale.
March 6:
384—sandy shale.
396—hard sandy shale and shells.
399—shale.
402—hard sandy shale.
410—sandy shale.
425—hard sandy shale shells.
March 7:
428—sticky shale.
455—hard sandy shale shells.
469—hard sandy shale.
March 8:
472—hard sandy shale.
482—hard sandy shale shells.
484—shale.
487—sandy shale.
498—hard sandy shale.
March 9:
519—hard sandy shale with streaks of sticky shale.
534—sharp shale.
559—hard sandy shale.
576—hard sandy shale.
602—hard sandy shale with shells.
March 11:
627—chert.
630—Caleargus sand rock.
631—hard sandy shale.
March 12:
632—hard sandy shale.
665—hard sandy shale.
677—hard sandy shale with shells.
March 13:
682—hard sandy shale with shells.
705—lime shell.
707—hard sandy shale and shells.
710—shale.
711—sharp shale.
March 14:
717—sharp shale and lime shells.
740—shale.
742—sharp shale.
751—hard sandy shale.
755—hard sandy shale and shells.
March 15:
763—hard sandy shale and shells.
773—sharp shale.
777—sharp shale.
783—hard sandy shale and shells.
787—sharp shale.
March 16:
804—sharp shale.
809—hard sandy shale and shells.
829—hard sandy shale.
844—shale.
848—hard sandy shale and shells.
March 17:
853—hard sandy shale and shells.
878—sharp shale.
886—hard sandy shale.
March 18:
888—hard sandy shale.
901—hard sandy shale.
March 19:
918—hard sandy shale and shells.
951—hard sandy shale.
March 20:
963—hard shale.
972—sticky shale.
976—hard shale.
988—hard shale.
990—sandy shale.
1,000—shale.
March 21:
1,029—hard shale.

(Continued on Page 98)

Late Fields

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Sept. 29.—Humble Oil & Refining Co.'s No. 1-C Sue Denmann in Darst Creek extension on a two-hour test gauged 912 bbls. per day, 10 per cent water, 3 per cent basic sediment, 36.2 gravity oil at 90°. It is the east offset to Camp's No. 1 Sue Denmann which gauged over 6,000 bbls. 1 mile southwest of Darst Creek and is the first test drilled since the Camp well came in.

Evans & Gant's No. 2 Love in Kerr County, with sand at 3,035-80 feet, with one small break of shale, is showing lots of gas and set casing.

Thomas and Tarver's No. 3 Bishop Cattle Co. in Schoolfield-O'Byrne extension is in flowing 800 bbls. daily on five-eighths-inch choke. Magnolia's No. 3 Wilson, farthest south test in the same field, is completed but will not flow and is standardizing. Humble's No. 1 White, farthest north test in same field, tested eight joints in 10 minutes and is setting casing.

COLORADO

DENVER, Colo., Sept. 28.—It is reported that the Continental Oil Co.'s No. 1 Briggs, C SE SW Section 13-6n-61, an offset to No. 1 Ida Johnson, was completed on September 27 for about 15 bbls. per hour oil production with 4,500,000 feet of gas. The Muddy sand was drilled from 6,640 to 6,660 feet and the character of the oil is similar to that secured in other wells in this pool.

It is further reported that Continental Oil Co.'s No. 1 Gadbois well, C SE SW Section 24-6n-61, was drilling at 6,120 feet September 26.

CALIFORNIA

LOS ANGELES, Calif., Sept. 29.—The Continental Oil Co. appears to have discovered a new oil field on a new structure about midway between the prolific Ventura Avenue and Rincon Field of Ventura County. The Continental's discovery well, No. 1 Grubb, blew in unexpectedly flowing at the rate of 1,000 bbls. of 30 gravity oil per day from 6,640 feet during a water shutoff test on the 9⅝-inch water string landed at 6,472 feet. The crew had drilled out only 5 feet below the shoe when the well blew in under a pressure of 1,000 pounds. Acreage in this new field is all held in large blocks and for this reason the area will be free from competitive drilling. The Continental and Chanslor-Canfield Midway Oil Co. appear to hold practically all of the potentially productive acreage and since both are in sympathy with curtailment, future drilling will consequently be retarded.

OKLAHOMA

Oklahoma's deepest well was drilling at 9,959 feet. Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Corp.'s No. 6 Preston-Culp, NW cor. NE Section 6-5-9w, on the west side of the Cement Field in Caddo County, is nearing the 10,000-foot depth. It is the deepest hole ever drilled in the Mid-Continent Field. The last string of casing was landed at 5,313 feet with open hole to the bottom.

The leasing of acreage in the vicinity of Cushing, in Payne County, has been active during the last few months. The area is located about a mile north of the townsite and extends south 2 miles beyond the city of Cushing. The acreage has been leased by major oil companies after the area was core-drilled during the summer.

In the Maud Pool, in Pottawatomie County, in the Greater Seminole district, the Sinclair Oil & Gas Co.'s No. 2 Bellaire, NW cor. NE NE Section 19-8-5, is being drilled deeper from the Hunton lime to the Wilcox sand. The old total depth of the well was 4,128 feet and it was cleaning out at 4,230 feet.

On the west side of the Oklahoma City Field, S. M. Stauffer's No. 1 Weinig, NE cor. NW SE, Section 15-11-3w, flowed 5,760 bbls. of oil the first five hours and was shut in. The gas volume was estimated at 30,000,000 feet a day. The sand was found from 6,433-6,520 feet.

New work started in the north end of the field includes Phillips Petroleum Co.'s No. 1 Brittain, NW cor. NE SE. Section 34-12-3w, which was preparing the location for a rig. Same operator's No. 1 Rock Island, SW cor. NW SW, Section 35-12-3w, was preparing to spud.

Magnolia Petroleum Co.'s No. 1 Cash, SW cor. NE SW, Section 6-14-4, Lincoln County, found the top of the Viola lime at 5,045 feet and was coring deeper at 5,072-93 feet with nothing showing. The test is located about a mile north of production in the West Chandler Pool in Lincoln County.

KANSAS

At a meeting held in Wichita, September 29, operators from the Ritz-Canton Pool in McPherson County and representatives of the Kansas Public Service Commission, voted to abandon the unit plan of operation which has been in effect in the area for some time. The daily allowable production was also increased from 10 per cent of the potential to 15 per cent of the potential and new unnecessary wells will be limited to 50 bbls. a day per well.

(Continued on Page 96)

High Spots in Field News

WEST TEXAS

Possible western Crane County Pool. Well may link Yates and Toberg-Tippett Pools extending shallow area.

NORTH LOUISIANA-ARKANSAS

Gas wells only completions in area. Good producers in Louisiana and Mississippi. Wildcatting in Arkansas active.

KANSAS

Public Service Commission increases allowable of Ritz-Canton Field from 10 per cent to 15 per cent of potential.

OKLAHOMA

Increased production from Oklahoma City due to taking allowables. Storage in State being emptied during martial law.

EAST TEXAS

There were 151 new locations during the week, 425 wells drilling and 95 completions. Total producing and dead wells now 2,048.

GULF COAST

Well at Vinton, La., flows 4,000 bbls. Third good well northeast of Refugio. Two deep tests at Lockwood Field, Fort Bend County.

CALIFORNIA

Continental Oil Co. opens new field midway between Ventura and Rincon with well blowing in at rate of 1,000 bbls. of 30 gravity oil at 6,640 feet. Acreage held in large blocks.

SOUTHWEST TEXAS

Darst Creek extension well gauges 912 bbls., 10 per cent water, 3 per cent b.s.; oil 36.2 gravity. Kerr County well showing lot of gas. Schoolfield-O'Byrne well flows 800 bbls.

ROCKY MOUNTAIN AREA

Continental Oil Co. well in Greasewood Dome, Colorado, completed for about 15 bbls. per hour with 4,500,000 feet of gas. Prairie makes location in field. New locations in Hobbs Pool, New Mexico.

East Texas Makes 151 New Locations

Now 425 Drilling Wells in District, Total of Producers and Dead Wells Being 2,048. Ninety-five Completions in Week

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 28.—A total of 151 new locations staked in the East Texas district during the week shows only a small decline in number since the past week when 166 were reported. The Humble Oil & Refining Co. has announced that it will curtail drilling in the district, and voiced hopes of seeing a general curtailment in the entire area by all the operators and companies. The Humble Oil & Refining Co. has more producing wells and production in the district than any other company, also being the leading purchaser in the district. The other large purchasers are: Magnolia Petroleum Co., Gulf Production Co., Sun Oil Co., Tidal Oil Co., Sinclair Oil & Gas Co., and The Texas Company.

Statements on Drilling

The Texas Corporation has made public a telegram to Gov. Ross D. Sterling of Texas, in which it states that the Sinclair Oil & Gas Co. was in error in its wire to the governor claiming that Texaco had 1,739 proven acres in the East Texas Field and had drilled an average of one well to each 39 acres.

The Sinclair telegram to Governor Sterling stated that from August 15 to September 5, and during the time the East Texas Field was under martial law, the Sinclair company drilled no wells in the area, while Humble drilled 61, Gulf 16, Shell 21, Magnolia 25, and The Texas Company 9. Up to September 19, the Sinclair wire stated, the same companies had completed a total of 701 wells, divided as follows: Humble, 267; Sinclair, 76; Shell, 67; Gulf, 136; Magnolia, 124; The Texas Company, 31. "The number of wells drilled naturally bears a relation to the total acreage controlled by the most active companies in East Texas," the Sinclair telegram added. "As of April 15, 1931, the Humble company held 12,220 acres of proven leases; Gulf, 8,831; Shell, 6,651; Sinclair, 5,811; Magnolia, 5,336; The Texas Corporation, 1,739 acres. On its acreage the Humble company has completed or is drilling one well to each 33 acres, while Shell has only one well to 79 acres. Magnolia is close to the Humble record, with one well to 35 acres; The Texas Corporation, one well to 39 acres; Gulf, one well to 45 acres; and Sinclair, one well to 65 acres."

Reply by The Texas Corporation

The Texas Corporation wire to Governor Sterling states: "The telegram to you from the Sinclair Oil & Gas Co. is in error in stating that we have 1,739 proven acres in the East Texas Field and have drilled an average of one well to each 39 acres. The facts are we have 9,300 acres and have drilled an average of one well to 134 acres, and of this acreage we held 3,500 acres when discovery well was drilled. We have all along regarded the intensive drilling in that section as unfortunate and tending to break down the conservation movement."

Mr. Farish's Statement

W. S. Farish, president of the Humble company, made the following statement: That his company owned 15,886 proven acres in East Texas out of 113,988, or 13.94 per cent; that as of September 23 it had completed 267 wells out of 2,053 for the field, or 13 per cent; that it had produced to that date 6,560,238 bbls. out of 68,287,208 bbls. for the field, or 9.61 per cent; that it had 48 wells drilling and 13 rigging up, or a total of 61 active operations; that it had drilled to date one well to every 59½ acres that it owned in the field and that under the drilling program recently announced the number of drilling wells within 30 days will be reduced to less than 30.

Drilling Wells

Drilling wells now total 425 in the district, while the number of producers and dead wells total 2,048. There are 25 dead wells in the Joiner district which have been dropped from the military heaquarters' report, this organization only carrying producing wells on its production report hereafter. During the week there were 35 wells completed in the Lathrop and Gladewater area, 30 in the Joiner area, and 30 in the Kilgore area; this makes a total of 95 wells completed during the past seven days. There are 205 tests drilling in the Lathrop and Gladewater area; 105 in the Kilgore area; and 120 in the Joiner area, with 520 producers in the first area; 748 in the Joiner area, and 780 in the Kilgore area. There are 62 derricks standing idle in the Longview area.

Production in the district totaled almost 377,500 bbls. on September 27. Production is gradually climbing with the 185-bbl. well limit, and will reach the 400,000-bbl. mark again within the next two weeks if the number of completions holds to around 90 wells per week. Building up the total daily production to this limit will no doubt cause another cutback in the per well allowable, for it seems to be the only feasible plan for holding the production to below the 400,000-bbl. figure which the Railroad Commission said would be the maximum set for the field. The Humble company abandoned several locations this week.

Gathering lines for the different pipe line systems are still being laid to unconnected leases which have been contracted by the various purchasing companies which are still soliciting connections.

Water Situation

The Railroad Commission is seeking to establish a monthly water report on the district, C. V. Cottingham, one of the deputy supervisors, working on this special investigation and being aided by geologists and engineers of the various producing companies. The engineers have already made a report on the west edge of the field, covering a section one-half mile wide extending from the Sabine River south to the Henderson-Tyler Highway. Practically all of the wells making water are found within this section. Thirty-six wells located on this west edge, have at one time, or are at the present time making water. However, curtailing production to 185 bbls. per day has pinched in the flow to such an extent that in many of the wells no water is being produced, while in others it has cut the amount of water to but a small percentage of what they were originally making.

In the Cole area, Brooks Survey, west Gregg County, several wells were making water, one having been plugged on account of a high volume of water, but due to pinching they are all making pipe line oil at the present time.

Sinclair Oil & Gas Co.'s No. 5 Cole, formerly reported as making 25 per cent water before plugging back and pinching, is now making no water under the 185-bbl.-per-well limit. This is one good example of how curtailment has kept down the water head, and how the field may be benefited by such curtailment.

Continental Oil Co.'s No. 1 Crews, in the L. Perkins Survey, near Gladewater, on the western edge of the producing area in Gregg County, was reported last week as making water, but Fort Worth offices of the company have denied this report, stating that the well is making only 2 per cent b.s. which is mostly paraffin.

Under the 225-bbl.-per-well outlet the following wells located between Kilgore and Overton made water: East Texas Refining Co.'s No. 1 Wills, 1 per cent; Brown's No. 1 Terrell, 2 per cent; Shell Petroleum Corp.'s No. 1 Wills, 4 per cent; Guthrie's No. 1 Perry, 4 per cent; McMahon's No. 1 Wills, 1 per cent; Sun Oil Co.'s No. 1 Barker, 2 per cent; Elliot's No. 1 Terrell was killed by salt water, as was also Chapman's No. 1 Russell. Stanolind Oil & Gas Co.'s No. 1 Christian made 4 per cent salt water.

Reported Purchases

The Gulf Production Co., which owned a one-half interest in the Gulf, Byrd and Frost block northeast of Kilgore in the Van Winkle and Bawnet Surveys, Gregg County, has purchased the Humble Oil & Refining Co.'s one-fourth interest in the block. Byrd and Frost retained their one-fourth interest.

Reports persist that the Humble Oil & Refining Co. is negotiating for the purchase of the Mid-Kansas Oil & Gas Co.'s acreage in the southwestern part of the Joiner area, Rusk County, but nothing authentic can be obtained on the possible transaction. The latter company owns around 2,000 acres in the southwestern part of Rusk County and the northeastern corner of Cherokee County.

Mid-Kansas Oil & Gas Co. some time ago sold its acreage in Gregg County to the Tidal Oil Co., including a loading rack and gathering system in the Lathrop area. The Mid-Kansas company also has a loading rack south of Arp on the I.&G.N. Railroad, and a connecting line and gathering lines in the Joiner area, this system possibly being included in the deal with Humble in case such a transaction is consummated. This sale would dispose of all the company's holdings in the district.

Important Location

An important location has been staked by Joe Sanders on the north 68 acres of the W. B. Perry 176-acre tract in the N. L. Sparks Survey, approximately 2 miles south of Carlyle and south of production in the Joiner area, Rusk County. The nearest production is on the Cross farm in the Cadene Survey, Mid-Kansas Oil & Gas Company's two wells on this lease being estimated good for around 4,000 bbls. per day, but as salt water has not shown up in these wells, there is a chance for production to be extended several miles farther south, and this well may mark such an extension, stretching the East Texas Field out for over 40 miles from the northern tip of production to the southwestern limits.

Tytex Oil Co.'s No. 1 C. B. Jones, in the Henry W. Augustine Survey, approximately 2 miles northwest of Gladewater, Gregg County, had a showing of oil from 3,640-54 feet and on two drill stem tests, after setting packer at 3,574 feet, it made 2 joints of oil and rotary mud on each test. Casing will be cemented and the well tested as soon as cement sets. The test is in dangerous territory, Stanolind Oil & Gas Co. and Weaver's No. 1 Everett, approximately 1 mile due east, making 50 per cent water, marking a defining limit on this edge of the producing area.

Fire Extinguished

Hugh L. Patton, teaming contractor of Overton, who snuffed out the Vitek Oil Co.'s No. 1 Eaton near Overton in Rusk County, with an ingenious contrivance and hook-up of water lines, also subdued the Texas Oil & Royalty Co.'s No. 1 Finn fire near Gladewater this week by stabbing a water line into the top of the joint of 10-inch casing which stuck up above the top of the surface pipe, and pumping water into the well with a mud hog standing on an offset test, water through this connecting line killing the fire in 56 minutes after water was started pumping into the well. This was the seventh oil well fire for East Texas.

COMPLETIONS IN EAST CENTRAL TEXAS

Gregg County

Arkansas Fuel Oil Co.'s No. 1 Christian, oil sand 3,575-94 feet, initial pro-

(Continued on Page 86)

EAST CENTRAL TEXAS WILDCATS

Week Ending September 28

ANDERSON COUNTY

Company, well, farm name, section and block— Remarks:

Riango Oil Co.'s No. 1 J. Lynn, 1,400 ft. from NE line and 7,425 ft. from E line of survey, R. Brown Sur. ..Fishing 2,755 ft.

H. B. McConnell et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur. .....Rig up and shut down.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 875 ft. from E line of survey, T. S. McKinney Sur. .....Drlg. 3,200 ft.

Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Charles Lewis Sur. .....Drlg. 3,926 ft.

Parkering-Jones et al's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur. .....Shut down 1,102 ft.

Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur. .....Salt water on drill stem test; shut down 3,012 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, James Dill Sur. .....Shut down 1,000 ft.

Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur. .....Derrick.

Helen-Clare Oil Co.'s No. 1 Mrs. M. P. Perkins, 1,800 ft. from N and 450 ft. from W of survey, Thomas Stafford Sur. .....Rig up.

William A. Stone's No. 1 Blount Decker, 900 ft. E of E line of S. Selman Sur. and 1,200 ft. S of N line of E. M. Decker 406-ac. tract in George Ruddle Sur. .....T. D. 5,476 ft.; plugged back to 5,470 ft.; drill stem test; flowing salt water.

Walton Oil Co.'s No. 1 E. Singletary, 350 ft. W and 150 ft. N of NE cor. of M. Lacey Sur. and in Walters Sur. on Singletary 34-ac. tract .....T. D. 2,960 ft.; shut down.

DALLAS COUNTY

Paris' No. 1 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John P. Anderson Sur. .....Drlg. 1,141 ft. in sand.

Possible Western Crane County Pool

Well May Join Yates and Toborg-Tippett Pools, Extending Shallow Area. Wildcat Location in Northeastern Ector County

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 28.—A vast amount of oil has been withdrawn from the Permian Basin during the past few months, especially since East Texas has been curtailed, and during the complete martial law shut down in that field. For the week ending September 16 oil run through trunk lines averaged 263,089 bbls. per day, a gain in withdrawals of over 30,400 bbls. per day over the previous week. Daily average distribution for this period averaged almost 290,000 bbls. while daily average production for the same period averaged only 212,625 bbls., a difference of 77,120 bbls., and helping to reduce the crude oil stocks which have been stored in the many tanks in various parts of the district.

Withdrawing from storage in the district during the past few months has gradually cut down the stocks in that district to around 28,000,000 bbls., leaving slightly over 23,500,000 bbls. empty storage. Many tanks have been cut down in the district as they were emptied, and moved to the East Texas district where they have been re-erected for storage purposes. The Texas Company and Magnolia Petroleum Co. have moved the largest number of tanks from one district to the other.

Western Crane County

Southwest Oil Production Co. and Penn Oil Co.'s No. 1 Tubb in Section 3, Block B-27, Public School Lands, western Crane County, logged the salt 44 feet high last week and this week encountered a small showing of gas at 1,400-08 feet in anhydrite and lime, adding to the interest of this test which many believe will be a larger well than the discovery in Section 8, which is owned by the Gulf Production Co. and Cranfill Brothers. The discovery well struck its first gas at 1,410 feet, encountering an increase at 1,595-1,600 feet. It was later completed for a 100-bbl. well. The Southwest-Penn test is now drilling below 1,975 feet, and will be closely followed for further developments. This area is considered to have excellent possibilities for the opening of another major pool for the Permian Basin.

McCurdy and Easter's No. 1 Tippett, between the Yates and Toborg-Tippett Pools, Pecos County, Section 108, is now standing with casing cemented at 1,316 feet after topping the lime at 1,266 feet and encountering oil at 1,306 feet, the oil increasing to a hole full at 1,350 feet. Producing a well in this location brings the two pools nearer together, extending the areas of shallow production, and enlarging the possibilities and potentials of the two pools which are producing from different horizons, this well encountering the Yates pay.

Ector Wildcat

A wildcat location was staked this week by the Weekly Oil Corp., George M. Church and others, in Section 33, Block 43, Township 2s, T.&P. Survey, approximately 7 miles west of Odessa, on a line between the Church Fields Pool in Crane County and the Stanolind Oil & Gas Co.'s Cowden producers in the northeastern part of Ector County. The nearest test drilled to this location was completed last June by Galt-Brown of Midland. It was a dry hole, but had several oil showings of interest.

The Humble Oil & Refining Co., Stanolind Oil & Gas Co. and Plymouth Oil Co. hold blocks in the vicinity of this wildcat, other companies having acreage checkerboarded around it. Drilling will commence soon after October 1.

One of the O'Brien wells, in the northern end of Ward County, has increased from around 60 bbls. daily to 120 bbls. per day since deepening from 2,767 feet to 2,970 feet. It has been producing from the former depth since the early part of 1930. Pay was topped in the test at 2,555 feet, with an increase in gas and oil logged at 2,783-86 feet. The well belongs to Sid-Richardson and is in Section 5, Block F, G.M.M.B.&A. Survey.

Panhandle and Wichita Falls

Drilling activities in the Wichita Falls district are practically at a standstill due to lack of sufficient water for drilling purposes. All of the deep tests in Archer County have been shut down for this reason, as have been several tests in Young County. Better prices for crude oil during the past two months have revived the district considerably, but it is still in the doldrums compared to previous years when it was the most active district in the State.

The Panhandle district also remains quiet although there were three locations staked in Gray and Moore Counties during the week, the Texhoma Natural Gas Co. staking one in Section 151, Block B-2, H.&G.N. Survey, in Gray County, and one on the Coon-Sneed farm in Section 6, Block 6-T, T.&N.O. Survey, Moore County. The Quicksand Oil Co. also staked one in Gray County, in Section 69, Block 25, H.&G.N. Survey.

Two wells were completed in the district during the week, one a gas well in Section 37, Block M-20, G.&M. Survey, Potter County, by the Red River Gas Co., a 13,000,000-foot gasser, and the other a 29,000,000-foot gasser by the Humble Oil & Refining Co. in Section 154, Block 3, I.&G.N. Survey, Gray County.

Production gained almost 1,700 bbls. per day during the week due to considerable oil being run from lease storage.

COMPLETIONS IN WEST TEXAS

Loving County

Eppenauer and others' No. 1 Johnson, total depth 4,394 feet, plugged back to 4,391 feet, top pay 4,362 feet, initial production 91 bbls., shot 180 quarts from 4,352-91 feet. Pete Hoffman's No. 1 Wheat-Ramsey, total depth 4,256 feet, top pay 4,233 feet, shot 200 quarts 4,233-56 feet, initial production 288 bbls.

NORTH CENTRAL TEXAS PRODUCTION

Week ending September 27

	Bbls.
Panhandle District—	
Carson County	6,894
Gray County	43,013
Hutchinson County	15,189
Moore County	1,687
Potter County	....
Wheeler County	358
Total production this week	67,141
Total production last week	65,529
Increase	1,612
Wichita Falls District—	
Archer County	11,568
Baylor County	661
Clay County	436
Cooke County	1,500
Foard County	70
Haskell County	24
Jack County	1,882
Montague County	2,895
Throckmorton County	426
Wichita County	16,656
Wilbarger County	12,200
Young County	11,288
Total production this week	59,606
Total production last week	58,109
Increase	1,497
Ranger District—	
Brown County	2,988
Callahan County	1,477
Coleman County	2,060
Comanche County	743
Palo Pinto County	352
Eastland County	2,737
Shackelford County	3,218
Stephens County	4,035
Total production this week	19,375
Total production last week	16,664
Increase	2,711

COMPLETIONS IN PANHANDLE DISTRICT

Gray County

Sherwood's No. 1 Morse, top pay 2,580-

(Continued on Page 32)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending September 28

BREWSTER COUNTY

Company, well, farm name, section and block—	Remarks:
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.&S.F. Sur.	Shut down 2,900 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine	Shut down 1,750 ft.

COCHRAN COUNTY

Penn Oil Co.'s No. 1 Myrick, C Labour No. 80 of League 129, Carson County School Lands	Drlg. 1,515 ft.

CONCHO COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Betts & Dennis' No. 1 H. E. Woods, 710 ft. from E and 150 ft. from S Sec. 3, H.E.&W.T. Sur.	Shut down 80 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,850 ft.

CRANE COUNTY

Southwest Oil Prod. Co. (Cranfill Bros.) & Penn Oil Co.'s No. 1 J. B. Tubb, 330 ft. from N and E of SW cor. of S 80 acres of NW cor. Sec. 3, Blk. B-27, P.S.L. Sur.	Small show gas 1,400-08 ft.; drlg. 1,968 ft.

CROCKETT COUNTY

Doleman & Moore's No. 1 Ferner, 2,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.

CULBERSON COUNTY

Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land	Shut down 1,280 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur.	To resume drilling.

ECTOR COUNTY

Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W Sec. 33, Blk. 43, Twp. 2s, T.&P. Sur.	Rigging up.
H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur.	Shut down 2,280 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.P. No. 7,247	Shut down 1,693 ft.

FISHER COUNTY

The Texas Company's No. 1 Daniels, 357 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur.	Total depth 2,222 ft.; straightening crooked hole.

(Continued on Page 85)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending September 28

CARSON COUNTY

Company, well, farm name, section and block—	Remarks:
El Paso-Amarillo O. & G. Co.'s No. 1 Champan, 594 ft. S, 1,458 ft. E, Sec. 7, Blk. 3, A.B.&M. Sur.	T.D. 2,141 ft.; set 8-in. csg.; show gas 2,122 ft.
Empire G. & F. Co.'s No. 1 Poling, 1,320 ft. S and W, Sec. 28, Blk. Y-2, T.T.R.R. Sur.	S.D. 2,725 ft.; T.P. 2,515 ft., 12,800,000 ft. gas.
Magnolia Pet. Co.'s No. 1 Connell, 330 ft. N and E, SE, Sec. 66, Blk. 4, H.&G.N. Sur.	Drlg. 1,720 ft.
Texhoma Nat. Gas Co.'s No. 1 Harrison, center NW, Sec. 40, Blk. 4, I.&G.N. Sur.	Bldg. rig.
Texhoma Nat. Gas Co.'s No. 1 McLaughlin, center NW, Sec. 61, Blk. 4, I.&G.N. Sur.	Bldg. rig.
Texhoma Nat. Gas Co.'s No. 2 Schoffer, center SE, Sec. 64, Blk. 4, I.&G.N. Sur.	Moving in material.
Texoma Nat. Gas Co.'s No. 1 McEwen, 990 ft. from N line, 1,334 ft. from W line, Sec. 204, Blk. 3, I.&G.N. Sur.	Set 8-in. csg.; T.D. 2,350 ft.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
The Texas Company's No. 1 A. S. Daver, 1,335 ft. from N line and 656 ft. from W line, Sec. 81, Blk. 4, I.&G.N. Sur.	Location.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	S.D. 2,508 ft.
Downey et al's No. 1 Beasly, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur.	Rigged up.

GRAY COUNTY

Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, I.&G.N. Sur.	Rig.
Back & Barber's No. 1 Back, 660 ft. from S and 330 ft. from W, Sec. 140, Blk. 25, H.&G.N. Sur.	Moving in tools.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur.	Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur.	S.D. 1,245 ft.
Humble O. & R. Co.'s No. 1 Hughey, C NE, Sec. 154, Blk. 3, I.&G.N. Sur.	Killed gas to fish; T.D. 2,720 ft.
Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur.	Drlg. 630 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur.	S.D. 2,780 ft.
Magnolia Pet. Co.'s No. 1 Heaston, NE cor. S½ NE, Sec. 164, Blk. 3, I.&G.N. Sur.	Rig on ground.
Nelson et al's No. 1 Crewa, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur.	S.D. 2,619 ft.
Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur.	Bldg. rig.

(Continued on Page 83)

Bayonets may force up the price of crude oil but they can't make it worth more

Its worth depends on the value you can get out of it

Dubbs cracking gets the utmost value out of a barrel of crude oil—or any other kind of oil

To keep in the ground crude oil that is not needed means to restore markets and solve our difficulties

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And it's always Dubbs cracked gasoline

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Pipe Line Construction News

TEXAS RATE HEARING DELAYED INDEFINITELY

By Special Correspondent

AUSTIN, Tex., Sept. 28.—The Railroad Commission delayed indefinitely Monday its hearing on application pending before it for reduced pipe line rates on oil, and for placing in effect the common purchaser pipe line law passed by the first called session of the legislature. The hearing was postponed when the commission sustained an objection filed by the North Texas Oil & Gas Association that a rate temporarily fixed by it would deny shippers the right of reparations if tariffs later were found too high. Hearing on the oil section of the common purchaser act was delayed to consider rules for its enforcement as it relates to natural gas.

No order was expected until after a hearing here September 30 on applying the new conservation act on all fields except East Texas and the Panhandle, and one in Amarillo October 3, dealing with the Panhandle Field.

Gas purchasers contended when the question was taken up here Monday that the new law does not require them to purchase residue gas after it is stripped, while independent operators insisted it covered all kinds of gas.

The chief oil and gas supervisor said the Amarillo hearing will deal with the wastage of gas in the Panhandle Field, saying estimates were made to the commission that this runs as high as 500,000,000 feet daily.

KANSAS COMMUNITIES TO LAY CHANUTE LINE

CHANUTE, Kans., Sept. 28.—Construction of a new pipe line and compressor station at a cost of $100,000 will be started by the Kansas Communities Gas Co., Chanute, as soon as negotiations are completed for natural gas production from a field comprising 11,000 acres northeast of here, W. E. Murphy, general manager of the company, announced.

The pipe line, Murphy said, will extend 12 miles from the fields to the Chanute city limits. Gas will be sold, under contract, to the city of Chanute for distribution through municipally owned gas lines.

MISSOURI VALLEY LINE

The Missouri Valley Gas Co. is building another section of its 24-inch pipe line in Kansas, and now is engaged in Barton, Ellsworth and Stafford Counties. Men are building an "A" type steel bridge strong enough to carry four lines of heavy pipe across the Arkansas River south of Ellenwood. Ditchers are soon to be on the job. Two camps for the workers have been established and a third will soon be taking care of men.

MONTANA GAS OPERATIONS

CHATHAM, Ontario, Sept. 26.—Consumers Gas Co., supplying Sweetgrass, Mont., has taken up its line from the Buckley-Red Coulee line and laid a new line to Sunburst at a cost of $10,000 to take production from the Kevin-Sunburst Field. Great Northern Utilities, Ltd., supplying Shelby, Mont., has reduced its rate to 15 cents per 1,000 feet.

PORT CREDIT EXTENSION

CHATHAM, Ontario, Sept. 26.—Consumers Gas Co. of Toronto has completed extension of its main transmission lines from Port Credit, Ontario, west to Lakeview, a distance of 5 miles. Laterals are now being laid.

N. Y.-PENN GAS DEVELOPMENT INVOLVES LARGE INVESTMENTS

Several leading natural gas companies have entered the New York-Pennsylvania gas field, also known as the Wayne-Dundee and Tioga Fields. The Lycoming Natural Gas Co., a subsidiary of the Standard Oil Co. of New Jersey, is constructing a pipe line to Syracuse, with plans for extending it eventually through Albany into New England. The Columbia Gas & Electric Co. has been taking gas from the Wayne-Tyrone Field for its pipe lines for several months.

The Iroquois Gas Corp. of Buffalo, a subsidiary of the National Fuel Gas Co., one of the old Standard Oil units, is building an extension that will connect its long-standing pipe line system in Buffalo and western New York to the new Wayne Field. Purchase contracts have been signed between Iroquois and two of the largest producing companies in the Wayne-Tyrone Field. Lycoming recently signed purchase contracts with several other producing companies.

The Tyrone Field is owned almost outright by the Belmont Quadrangle Drilling Corp. and is being developed with an average spacing of one well to 75 acres. This method of development was made possible because the various landowners pooled all their interests and are receiving royalties on all gas sold in proportion to their holdings in proven territory. Large economies result from such a system of development.

The gas from this field is sold to the Columbia Gas & Electric Corp. and is taken to a "scrubbing" plant near Dundee, N. Y., where the sulphur is removed, and thence is moved through pipe lines to various points of distribution. Most of this gas is being sold at retail in the city of Binghamton, but it is expected that a supply will be available soon in several northern New Jersey cities.

The Wayne Field consists of two parts: The village of Wayne, of about 25 acres of town lots, and the remainder of the field, made up of reasonably large-sized farms. The Belmont Quadrangle Drilling Corp. and the Cunningham Natural Gas Corp. own in fee or have leaseholds on about 80 per cent of the field, the remainder being held by various other companies. Outside of the village of Wayne, development has been as systematic as possible, but in the village the land has been overdrilled.

Belmont Quadrangle has completed into the Wayne Field a line that connects with its Tyrone line. The Iroquois company has under construction a line from Dansville to Wayne, which will carry Belmont and Cunningham gas into the trunk line that supplies Buffalo and other towns and villages in western New York.

The Lycoming company has contracted to purchase gas from the Bigelow Gas Corp. and associated companies, but no definite construction work has been started to move this gas to market. Announcement has been made, however, that it will be taken probably into the towns of Penn Yan and Geneva.

Discovery of the Tioga Field, the geologists point out, was responsible for the almost unparalleled competition for acreage among virtually all large utility companies in the country. The sand is not uniform, however, and in consequence several dry holes have been drilled. In addition, the rocks below the surface are faulted, which has considerably restricted the potential productive area.

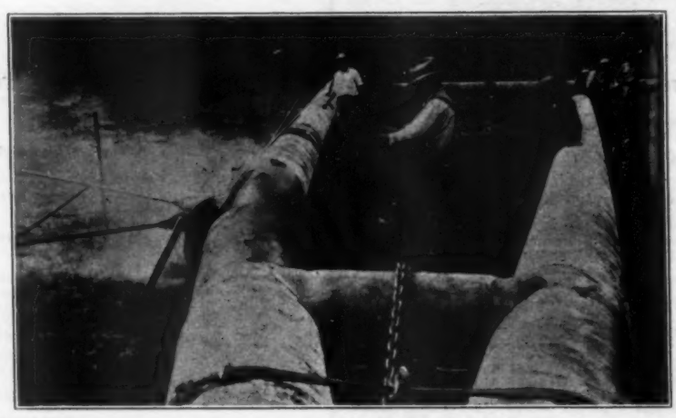
Initial production of Tioga wells has been, on the average, greater than in the Tyrone-Wayne Field, but owing to the greater drilling depths the development cost is proportionately higher. As the field becomes better defined, it is held, the percentage of dry holes may be somewhat reduced.

CANADIANS PLANNING GAS LINE TO THE PACIFIC

CHATHAM, Ontario, Sept. 26.—Plans to form a gas marketing and pipe line company are under way by independent operators in Turner Valley, it was announced at Calgary. British or United States capital may be used in financing the plan, which aims at piping gas to points requiring it, including parts of the Pacific Coast. Spokesmen for the operators said that, with modifications, they would still consider the pooling plan of the provincial government for conservation and distribution of gas.

H. Greenfield, formerly prime minister of Alberta, was appointed chairman of a proposed committee to place the Turner Valley situation before the provincial administration, detailing why the independent operators object to the government's scheme for pooling 43 companies to conserve and distribute Turner Valley's product.

HANDLING BIG PIPE FOR GAS LINES



Making a hot bend with oil heater in a 24-inch pipe during construction of gas line from the Panhandle of Texas to Chicago, Ill. Work done by Ford, Bacon & Davis, Inc., and Williams Brothers, Inc.

PANHANDLE EASTERN READY TO FURNISH GAS

CHICAGO, Sept. 28.—The Panhandle-Eastern Pipe Line Co., jointly owned by the Missouri-Kansas Pipe Line Co. and the Columbia Oil & Gasoline Corp., is rapidly evolving into an operating natural gas company. As soon as proceedings before the Illinois Commerce Commission are closed, Panhandle will begin furnishing natural gas to about 25 Illinois cities and towns, providing action of the commission does not prevent the company's distribution contracts with operating utilities in Illinois from becoming effective. Panhandle also plans to sell gas to 11 communities in Missouri and 2 in Kansas in addition to the 50 cities and towns in these two states which are buying natural gas from the company.

The question before the Illinois Commerce Commission was brought by the cities of Peoria, Springfield, Bartonville, East Peoria and Pekin, which are asking proof of the fairness of operating companies' rates for natural gas. Panhandle already has furnished the commission with information in support of rates charged the operating companies.

The excess line flow of Panhandle-Eastern will be sold to the Columbia Gas & Electric Co.'s subsidiary, the Ohio Fuel Gas Co., and to the Missouri-Kansas Pipe Line Co.'s subsidiary, the Kentucky Natural Gas Co. Ohio Fuel Gas has nearly completed its line from Muncie, Ind., to the Indiana-Illinois state line to connect with Panhandle. The Kentucky Natural Gas Co. will construct a line from either Brazil or Terre Haute, Ind., to the Illinois line to make its tie-in. Gas bought by Ohio Fuel Gas probably will be used in supplying Columbia Gas' western properties, while Missouri-Kansas probably will use its portion to assist in building up markets in central and western Indiana, although Kentucky Natural needs no additional capacity with which to supply its markets.

Other sources of income for Panhandle arise from the sale of gas at the Chanute fields to the Midwest Gas Co. and other companies, and delivery at the Hugoton fields to the Argus Production Co. Panhandle also has an agreement with the Missouri Valley Gas Co. to transport gas for it from the Hugoton fields to Mullenville, Kans., until Missouri Gas constructs its line between these points.

Panhandle has a total of 1,340 miles of line constructed, and an additional 50 miles of laterals under construction but not yet completed. Of this total, 840 miles is accounted for by the main line from the Texas Panhandle to Indiana. The balance consists of 163 miles of gathering lines and 387 miles of laterals. The main lines, field lines and laterals in the Kansas City area increase the total to approximately 2,200 miles. Adding the 600 miles of Kentucky Natural, the total becomes about 2,800 miles, and, by the end of 1931, Panhandle-Eastern and Kentucky Natural will be operating approximately 3,000 miles of gas lines, according to the construction program outlined for the remainder of this year.

KENTUCKY EXPANSION

Consolidated Utilities of Kentucky, Glasgow, Ky., has acquired the Leitchfield Natural Gas Co. of Leitchfield, Grayson County, Kentucky. Work on improving the service will be started at once and the company plans to extend the lines to Clarkson and Caneyville. It is also reported the company has contracted for its pipe requirements necessary to tie in the other communities in which it holds franchises and work on these systems will start at once.

Is the Contractor ABLE as well as WILLING to fulfill his promises?

Those were the days . . . When a shake of the hand was more binding than the dotted line. Such mutual trust was based on Honor—and ABILITY to uphold that Honor.

Saying it another way, your true Southern Gentleman never made a promise he could not keep.

. . . . Just as Truman-Smith never submits a bid which does not allow for scrupulous fulfillment of every specification in the Contract. Through long years of service, Truman-Smith has NEVER fallen down on ONE job.

"A Truman-Smith Bid is the Most Economical in the Long Run"

A TRUMAN-SMITH BID IS THE MOST ECONOMICAL IN THE LONG RUN

Occasionally a Pipe Line Contractor falls down in spite of the best intentions and sincerest effort. Truman-Smith's enormous reserves of equipment make it possible to take on any job thoroughly prepared to carry out all promises. And no Truman-Smith bid is too low to allow us to do that—at a reasonable profit.

The TRUMAN-SMITH CONST. Co.

EL DORADO, KANSAS.

MIXING NATURAL AND COAL GAS FOR CHICAGO

(Continued from Page 17)

anced valve, thus increasing the natural gas flow through the butterfly valve and restoring the balance. Thus, once set for the correct proportion of two gases, each of substantially constant heating value, to produce the desired heating value of the mixture, the Smoot proportioning mixing control will operate over a wide range of volumes. If the heating value of either or both of the component gases changes so that the heating value of the mixture is affected, a change in the loading of the balanced valve regulator causes the balanced valve to open more if the heating value is to be increased or to close somewhat if the heating value is to be lowered. This change in the loading of the balanced valve regulator is performed by a motor actuator which is controlled either manually by push buttons or automatically by contactors installed in a Cutler-Hammer Thomas calorimeter. The Cutler-Hammer Co. has equipped this Thomas calorimeter with the necessary adjustable contactors, interrupters, and push button control station. Thus, if the B.t.u. curve of the mixture moves outside the limits set by the special contactors, the motor actuator is energized through suitable relays and the loading of the regulator altered to give the desired change—more or less natural gas—in the mixed gas.

Oil Fogging

The gas before delivery into the transmission system is treated with an oil fog to prevent the drying out of the yarn packing in bell and spigot joints. This fogging of the gas takes place at each of the two distributing points.

The fogging apparatus is manufactured by the Western Gas Construction Co. and consists of two units of the hot oil type. Each unit has a capacity of 150 gallons of oil per day capable of fogging 50,000,000 feet per day at a rate of 3 gallons per 1,000,000 feet. Advantage is taken of the higher pressure of the natural gas to utilize it for the sweep gas through the fogger. Part of this sweep gas bubbles through hot oil at 450 to 500° F. and then the oil saturated gas meets a larger volume of cold sweep gas which condenses the oil vapor into a fog and as such passes through a cyclonic separator where heavy particles of fog are removed, permitting the finely divided fog to pass into the transmission system.

Other fogging installations are installed at other points in the transmission system.

Calumet Compressor Station

Four reciprocating Worthington compressors are installed at the Calumet station to pump coal gas to a maximum pressure of 30 pounds per square inch.

Two of these compressors are gas engine driven, using natural gas as fuel, but can be operated with coal gas as fuel if necessary. Each of these units is a 1,250 I.C.H.P. 24"x36" horizontal twin tandem, double acting, four-cycle gas engine direct connected to two 47"x36" compressor cylinders. The normal speed of each unit is 125 r.p.m. but speed regulation permits a maximum speed of 130 r.p.m. and a minimum speed of 65 r.p.m. The fuel consumption of the engine is rated at 10,000 effective B.t.u. per brake horsepower hour at full load.

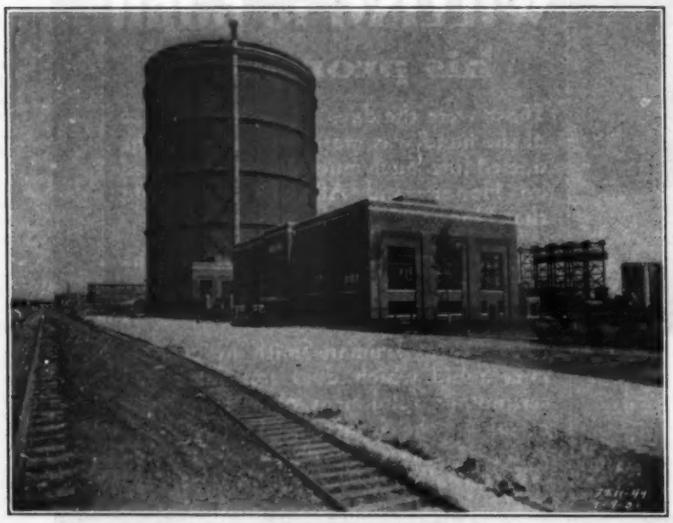
Each outboard head of each compressor cylinder is fitted with two clearance unloaders and each inboard head with two clearance unloaders with a separate hand operated valve for each unloader.

The capacity of each complete unit when pumping coal gas at atmospheric suction pressure and 20 pounds per square inch discharge is 930,000 feet per hour and at 25 pounds per square inch discharge the capacity is 840,000 feet per hour.

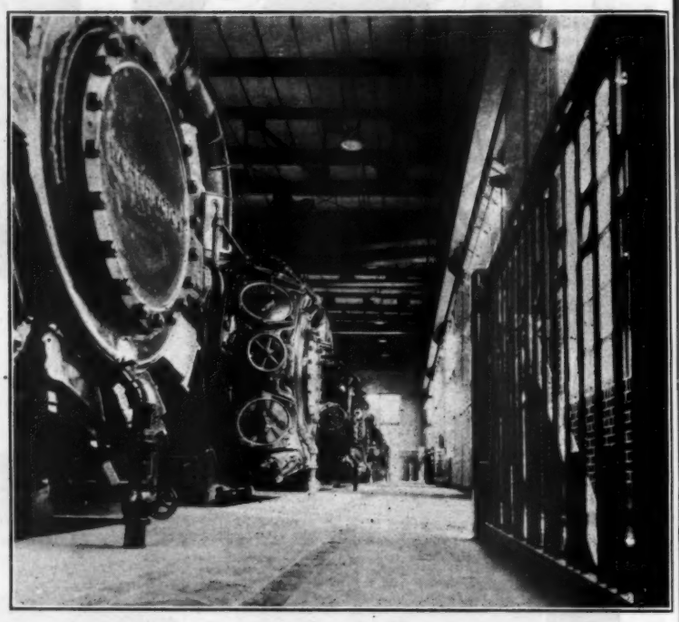
The other two compressors are also Worthington compressors driven by Allis-Chalmers motors. Each of these motor-driven units consists of four 49"x30" horizontal duplex single stage opposed compressor cylinders arranged with shafts extended between the frames for direct mounting of the synchronous motors thereon. An Allis-Chalmers 2,500-horsepower 3,800-2,200 volt, three-phase, 60-cycle synchronous motor drives each unit. The speed of the motor is 138.5 r.p.m. and the collector rings are enclosed in an air-tight case.

Each of the motor-driven compressors is equipped with a semiautomatic variable capacity control, by means of which the output capacity of each compressor can be varied in eight steps to within 50 per cent of full capacity which thereby unloads the compressor in successive increments of 6 per cent full capacity. The control is further supplemented by a by-pass arrangement permitting the compressor cylinders to be fully unloaded for starting conditions.

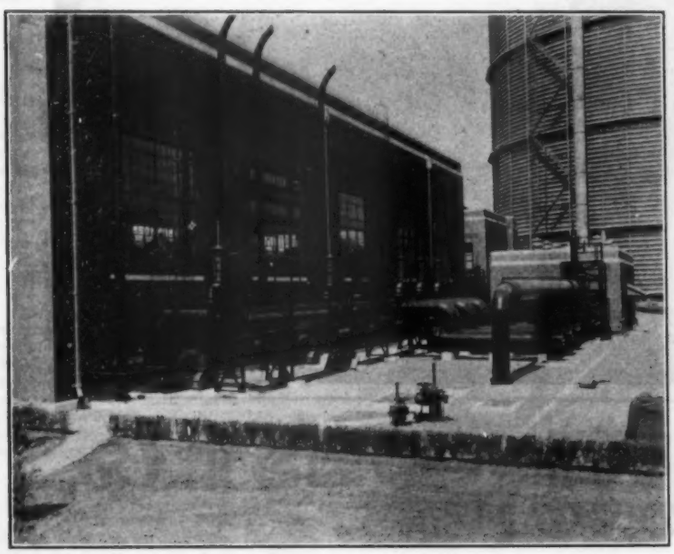
The full capacity of each motor-driven unit with atmospheric pressure on the suction and 25 pounds per square inch



Front view of new Compressor Building and 10,000,000-foot Waterless Holder.

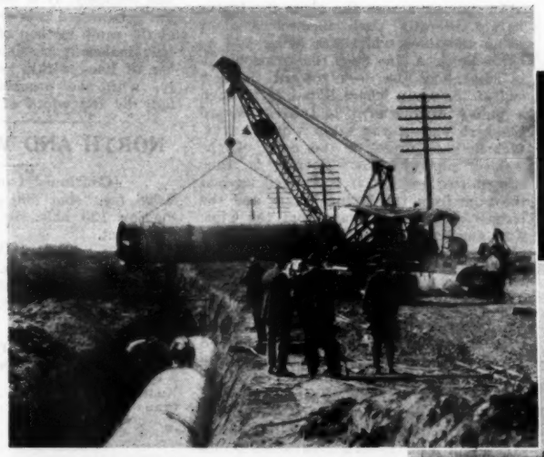


Interior view of compressor station showing blending station set-up.



Rear view of Compressor Building showing outlet header, after coolers, and Mixing Building.

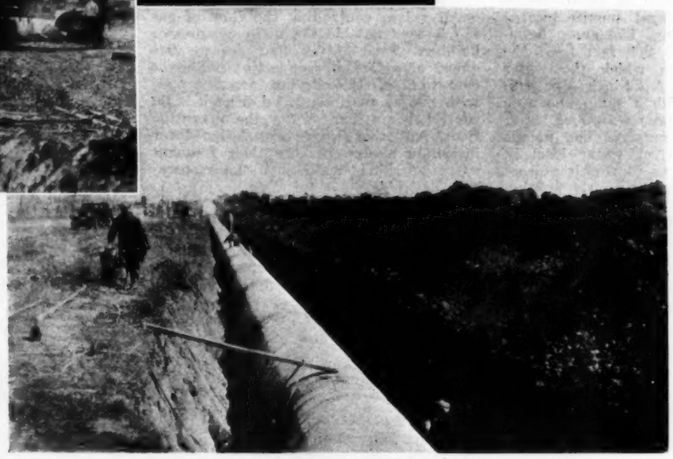
General view of Calumet Compressor Station showing old compressor building, in immediate foreground, new compressor building, mixing and fogging building and pump building.



At left—Placing a section of 65" Pabco wrapped pipe line.

Below—65" Pabco wrapped pipe line just before being lowered into place.

PABCO MULTIPLE PROTECTION



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PABCO Method of PIPE PROTECTION

discharge pressure is 1,680,000 feet per hour and at 20 pounds per square inch discharge pressure the full capacity is 1,900,000 feet per hour.

After Coolers

The gas after leaving the compressors passes through Griscom-Russell style T gas coolers. Three of these coolers are installed, the gas passing through them in parallel and the water passing through either in series or in parallel. Each cooler is 40 inches outside diameter and 21 feet long, and contains 697 1-inch O.D. rolled steel tubes. The gas makes two passes through the tubes. The total cooling surface of each cooler is 3,250 square feet.

The total capacity of the three coolers is 4,000,000 feet per hour, with the inlet temperature of the gas 240° F. and the outlet temperature 100° F.

Auxiliary Equipment

The water supply for the compressors and coolers is supplied by three electrically driven centrifugal pumps located in a separate building. The pump building is located about 800 feet from the Calumet River from which the water supply is obtained. A 24-inch pipe connecting the river with a sump alongside the pump house permits a flow of water from the river by gravity. The pumps are located below river water level in the pump house so as to permit a head of water from the sump to the suction of the pumps. The pumps have a combined capacity of 3,000 gallons per minute at 50 pounds per square inch pressure.

Air required for starting the gas engines and for operating the unloading valves of the electrically driven compressors is provided for by means of one motor-driven and one gas-driven air compressor located in the basement of the compressor house. Five air tanks are provided for air storage at 250 pounds per square inch pressure.

Another brick building houses the Smoot mixing control and the fogging apparatus.

Compressor Building

The main compressor building is constructed of Tuxedo brick and is 149 feet long, 74'6" wide, and 47 feet high. The floor of the basement is at ground level and the operating floor is 10 feet above ground level. The inside walls of the basement are finished in yellow salt glazed brick and above the operating floor the inside walls from floor level to 7 feet above floor level are green salt glazed brick, and from there on to underneath the roof is a white salt glazed brick. Between the green and white salt glazed brick is a belt course of white and green mixed glazed brick. Just below the roof trusses there is another belt course of white and green salt glazed brick with a center piece of red quarry tile.

The roof is a monolitic reinforced gypsum type of construction covered with 4-ply tar and gravel roofing.

The operating floor is of concrete and steel beam construction finished off with red quarry tile with a border of black and red tile mixed.

The entire building and foundations of compressors rest upon a floating, heavily reinforced concrete slab over the entire building area. The foundations for the compressors extend from this slab to above the operating floor and are of concrete construction. These compressor foundations carry part of the operating floor, but are, as a whole, entirely separate from the floor system in order to minimize vibration.

A 10-ton crane with a 72-foot span is provided for handling heavy parts of machinery.

Heating of the building is provided for by means of two 10-pound gas-fired boilers of steel construction. These boilers are housed in one corner of the basement with a 12-inch partition wall fully sealed. The only entrance to this room is from the outside.

Valve Operation

All valves controlling the flow of gas are located outside the main compressor building. Such valves that require frequent operation in connection with the operation of the station are equipped with motors and controlled from a main control board located on the operating floor. All other valves are designed for installing motors in case their frequent operation should make such motor operation desirable.

R. M. WEAVER KILLED

FORT WORTH, Tex., Sept. 28.—Ralph M. Weaver, 34, independent geologist and president of the Falcon Oil Co., Fort Worth, was killed early Friday morning when his car overturned on the edge of Fort Worth.

NEW IDEAS EMPLOYED IN LAYING PIPE LINES

(Continued from Page 15)

minutes, during which 160 feet of pipe (in the two lines) is laid. No protective coating was applied.

In moving across the river the laying barges literally push themselves along using the lines which are being laid as barge poles. A line from the steam winch is run along the deck toward the low end of the ramp where it passes through a pulley arrangement and back toward the high end of the ramp where an attachment is made to the ends of the welded pipe lengths. Energy is thus transmitted so that it is applied against the pipe from the laying barges and the barges are moved away from the pipe. The auxiliary barge, 80 feet in length, carries as many as 24 of the 80-foot pipe lengths.

One 50-pound and one 100-pound portable generator supplies acetylene to the four welders. These generators, together with oxygen cylinder racks and charged cylinders, are located on the laying barge deck and under the ramp, under the charge of a competent attendant who sees to it that no time is lost when either generators or oxygen cylinders are exhausted. The motor generator sets, two in number, are located on the rear end of the laying barges and on the deck near the point where reinforcing straps are applied. With this method and equipment 9 to 11 welds on each line can be completed per day, representing an approximate total of 1,440 to 1,600 linear feet of pipe. It is estimated that the laying of these lines, totaling 26,000 feet, required 20 working days.

Recognition is due to Thomas Holloway, division superintendent of Prairie Pipe Line Co., for working out the general idea and the intricate details which made it possible to handle a project of this nature with so much safety, speed and economy. It is believed by those who have witnessed this crossing that the use of the ramp method of laying river crossings makes it possible to lay any number of lines within reason simultaneously, with the number probably limited only by the width of the laying barges.

NORTH AND WEST TEXAS

(Continued from Page 26)

2,698 feet, shot 400 quarts, initial production 120 bbls. on swab, total depth 2,703 feet.

Potter County

Red River Gas Co.'s No. 6-A Bivins, top pay 2,395-2,778 feet, initial production 13,000,000 feet of gas, total depth 2,779 feet.

WEST TEXAS PRODUCTION

Week Eding September 28

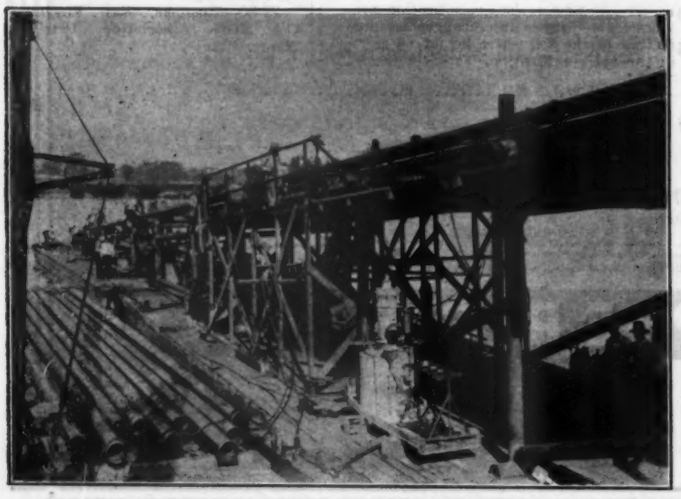
County—	No. wells	Prod.
Andrews	4	0
Crane	377	15,472
Crockett	51	1,170
Ector	78	7,548
Fisher	11	926
Garza	2	0
Howard-Glasscock	543	28,589
Irion	9	70
Jones	86	1,350
Loving	46	3,423
Mitchell	111	1,827
Pecos	549	73,624
Reagan	355	21,960
Runnels	5	75
Scurry	5	0
Upton	263	4,944
Taylor	3	45
Ward	69	2,972
Winkler	595	38,906
Total production this week		202,906
Total production last week		204,496
Decrease		1,590

Shipments Through Main Trunk Lines Company, size, location—	Bbls.
Atlantic, 10-in., Houston	23,426
Gulf, 10-in., Ranger	23,816
Humble, 2-8-in., San Angelo	24,734
Humble, 10-12-in., Comyn	47,864
Illinois, 2-8-in., Del Rio	26,600
Magnolia, 8-in., De Leon	7,609
Pasotex, 8-in., El Paso	9,503
Shell, 10-in., Cushing, Okla.	40,674
Shell, 10-in., Houston	33,653
Texas, 12-in., Houston	25,206
Total	263,089

Shipments to West Texas Refineries	
Burford Refining Co., Pecos	5,373
Cosden Refining Co., Big Spring	7,500
Coltex Refining Co., Colorado	5,333
Great Western Ref. Co., Big Spring	2,500
Continental Refining Co., Pyote	1,251
Wickett Refining Co., Wickett	500
Total	25,456

Shipments by Tank Car	
Shell Pet. Corp., from McCamey	400
Big Lake Oil Co., from Texon	800
Total	1,200
Total daily average production	312,631
Total daily average distribution	289,745
Daily average from storage	77,114

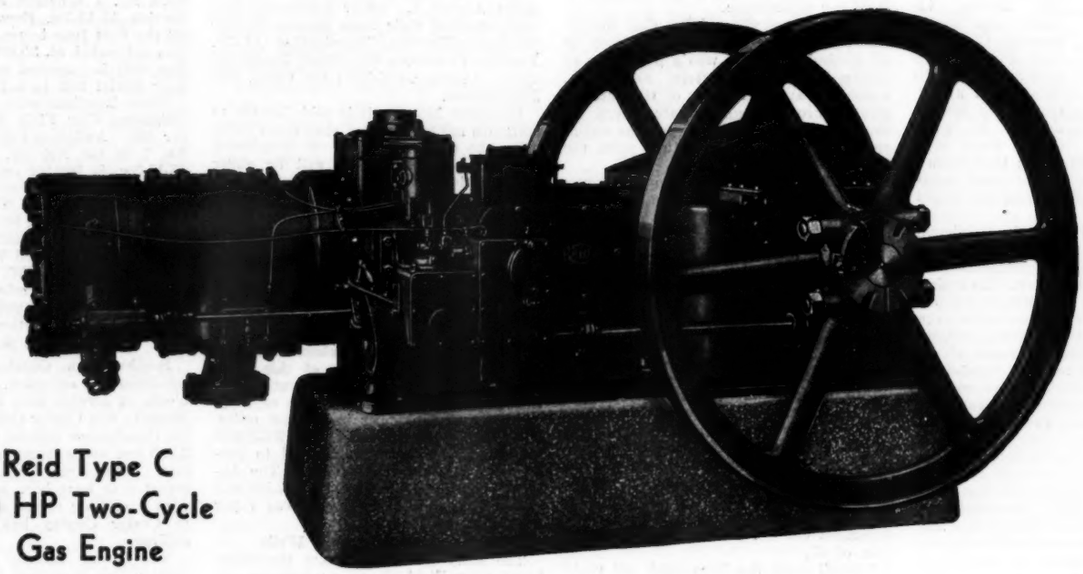
Gas welding in foreground with men applying reinforcing straps in background.



Arrangement of barges, material and equipment.

Doubling the 40-foot pipe lengths.

The Most Important Requirement is WORK



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40 HP Two-Cycle
Gas Engine

Work is the sole function of any oilfield engine just as profit is the aim of the producer.

Work—its cost, quality, and quantity must be the true measure of engine value.

Reid Type C Two-Cycle Gas Engines are built particularly for oilfield work. In every phase of performance they have surpassed all promises made for them. No matter how adverse the conditions, their ability has been proven with every installation.

The reliable and economical operation, smooth running with abundant power at all speeds, and exclusive mechanical refinements developed by Reid engineers are factors that have an important part in meeting the most important oilfield engine requirement—Work.

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Getting Rid of Stocks in Oklahoma

Oklahoma and Seminole Storage Being Emptied Because of Underproduction. Discuss the Reopening of Fields

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Crude oil production in Oklahoma shows an increase of approximately 7,000 bbls. a day for the seven days ending September 26. The daily average production was approximately 263,850 bbls. daily. The State's increase was mostly from the Oklahoma City Field, which averaged 8,380 bbls. of oil a day. Crude oil continues to be withdrawn from storage in large quantities from tank farms. Indications are that the prorated fields which are now shut down may be opened around October 1.

It is reported that when the Oklahoma City Field is opened after the military shutdown is lifted, the allowable may be placed at 200,000 bbls. a day. The underproduced wells may be allowed 100,000 bbls. a day and the completed wells even with production may be allowed 100,000 bbls. a day. The underproduced oil in the field is believed to total around 4,000,000 bbls. and at the above rate it would take the underproduced wells approximately six weeks to be even with their allowables.

The reopening of the fields has been under discussion and several meetings have been held by Oklahoma City operators in Oklahoma City. The operators have been marking time during the last few days of September while waiting for the expected price increase, subsequent to the reopening of the shutdown fields in the State.

In the meantime operators are preparing a proration schedule for the operation of the Oklahoma City Field prior to asking the Oklahoma Corporation Commission to issue a new order to be used when the field is opened. It will also be necessary for the pipe line companies to hold a meeting to discuss what each company's nominations will be.

Cicero I. Murray, in charge of the military shutdown, said during the week that the situation had not changed since last week, and there was little possibility of any change in the situation until the crude oil purchasers posted a general higher price schedule.

The companies with storage oil in the Oklahoma City and Seminole area have been withdrawing crude oil in substantial quantities and statistics released during the week reveal that considerable oil is still being taken from the Greater Seminole area. The majority of the crude oil is being shipped out of the State in trunk lines to northern refining centers.

Bradford Resigns

During the week Otto Bradford, the field umpire in the Oklahoma City area, resigned in order to co-operate with the local and military forces when the Oklahoma City Field is opened to production again.

After the announcement was made that Bradford had resigned, the operators' committee held a meeting with the Oklahoma Corporation Commission and after it was over E. R. Hughes, a member of the commission, said that the umpires were appointees of the commission, although recommended by the operators and paid by them. He said the commission still recognized Otto Bradford as the umpire in the Oklahoma City field until Bradford submitted his resignation to the commission and it had been accepted.

E. R. Hughes said that the operators committee wanted to check the records in Bradford's office against those of the state tax department to determine whether certain companies had violated proration rules or had neglected to report gross production. If an audit of the umpire's records is made, it will be by a committee composed of one member named by the operators, one by the Corporation Commission, with one representative from the gross production department of the state tax commission.

Some express the opinion that the enforcement of the proration rules may be deadlocked and there was a possibility of disbanding the operators association, which is paying the cost of the enforcement of proration under state orders. If this takes place it would put the entire enforcement of the proration upon the State.

Notwithstanding the discussions over the status of the field umpire the operators were attempting to work out allowables for the field when it opens. Some express the opinion the Corporation Commission will extend the present order covering the Oklahoma City Field, until a date has been set to fix the daily allowables for the last quarter of the year beginning October 1.

Selling Storage Oil

The week ending September 26 was the eighth week of the military shut down of the prorated oil fields in Oklahoma. Two large crude oil sales of storage oil from the Oklahoma City Field were reported which will bring the field storage in that field to almost nothing. Tom Slick Oil Co. sold approximately 250,000 bbls. of lease-storage oil and the British American Oil Co. sold a total of 35,000 bbls. of oil.

The oil from the Tom Slick Oil Co.'s storage was divided between three purchasing companies, the Stanolind Crude Oil Purchasing Co. getting approximately 215,000 bbls., the Tidal Oil Co. 20,000 bbls. and the Continental Oil Co. 15,000 bbls. The delivery of the crude has started. About 150,000 bbls. of the total the Tom Slick Oil Co. now has in storage and the balance is due to be produced from wells which have not completed their eight-hour initial tests.

The British American Oil Co.'s oil was also divided between three purchasing companies, the Stanolind Crude Oil Purchasing Co. taking 15,000 bbls., the Sinclair Oil & Gas Co. taking 10,000 bbls. and the Oklahoma Pipe Line Co. taking 10,000 bbls. The crude oil is to be taken from lease storage.

The sale of oil by the Tom Slick Oil Co. removes the last large amount of crude from storage in the Oklahoma City Field. Other companies have moved their stocks and the lease tanks are believed to be almost empty since the field was shut down August 4. Other companies that have emptied their lease storage include the Indian Territory Illuminating Oil Co., Phillips Petroleum Co., Shell Petroleum Corp., Anderson-Prichard Oil Corp., and John Mabee.

Governor Murray, it is said, intends to maintain military rule of shut down fields after the order is lifted. It is believed the new proration order will be under the direction of Governor Murray, rather than the Oklahoma Corporation Commission. Governor Murray explained that this action would permit the reopening of the fields regardless of the price.

If the Oklahoma City Field is opened under the old allowables the daily production of that pool will be 193,354 bbls. which is 6 per cent of the rated potential of 3,222,582 bbls. The potential of the field was fixed by the Oklahoma Corporation Commission in June of this year. The commission fixed the potential and the allowables for the months of July, August and September in the last order. The July rated potential was 2,678,679 bbls. and the field was allowed to produce 8 per cent of that amount. The August potential was placed at 2,790,871 bbls. of oil and the allowable was 7 per cent of that amount.

Oklahoma City's New Wells

The daily production from the Oklahoma City Field shows an increase for the week ending September 26. The following wells were completed during the week and some completed their eight-hour initial gauges. Tom Slick Oil Co.'s No. 2 Whitfield, SW cor. SE SW, Section 34-12-3w, flowed 7,229 bbls. of oil in four hours and completed its initial eight-hour gauge. It flowed a total of 15,014 bbls. The gas volume was estimated at 37,000,000 feet a day. Same company's No. 1 Egbert, SW cor. SE SE, Section 34-12-3w, in the north end of the field, flowed 7,260 bbls. of oil in four hours and a total of 15,324 bbls. of oil in eight hours to complete its initial gauge. The gas volume was estimated at 47,000,000 feet a day. Wilcox Oil & Gas Co.'s No. 1 Marshall, NW cor. SW NW, Section 10-11-3w, on the west side of the field, flowed 945 bbls. of oil in three hours and was shut in. The gas volume was estimated at 9,000,000 feet a day. The well is to be reconditioned and cleaned out. The oil and gas were found in Wilcox sand at 6,395-6,532 feet. Sunbeam Oil Co.'s No. 1 Wheeler, SW cor. NW SE, Section 15-11-3w, flowed 5,593 bbls. of oil the first four hours. The gas volume was estimated at 35,000,000 feet a day. The well is expected to finish its eight-hour initial test in a few days.

Three locations were announced in the Oklahoma City Field Saturday, September 26. Anderson-Prichard Oil Corp.'s No. 1 in the NE cor. SE SW, Section 15-11-3w, is located on Block 82 of the Shields addition, and the same company's No. 2 in the SE cor. SW, Section 15-11-3w, located on Block 83 in the same addition, were both locations. The other location was the Liquid Wealth Oil Corp.'s No. 1 fee, SE cor. NW, Section 22-11-3w. It is located a half mile west of the production on the west side of the field. It is in the Spears addition.

Activity in Southwest

Southwestern Oklahoma is receiving considerable attention. Several large blocks of acreage have been assembled in Washita and Custer Counties. In Washita County one wildcat test is drilling at 2,315 feet and another is drilling at 1,100 feet. Two large blocks of acreage are reported to have been recently assembled with a drilling clause and another block in Custer County has been leased for drilling.

The leasing activity is based on the opinion that there may be a large oil pool somewhere in the Anadarko Basin. Wildcat operations have been carried on in the vicinity at different times. Gas and some oil has been found in the tests, but with the exception of some shallow production in Kiowa County and the gas field at Sayre, in Beckham County there has been no large production found.

One of the wildcat tests now drilling found what was estimated to be 1,000,000 feet of gas at 920 feet. The test is Burn & Prince's No. 1 Deck, SW cor. Section 21-8-18w, Washita County. It is the second test drilled on a block of leases assembled by Caudill Brothers. The first test was located about 3 miles south of the present wildcat test.

E. C. Hall and others are reported to have leased a block of acreage located about 2 miles southeast of Cordell, Washita County, consisting of approximately 12,000 acres on which a wildcat test may be drilled to 7,000 feet. The location of the test has not been announced. Included in the block is the acreage on which Santrock and others' No. 1 in Section 23-9-17w, was drilled to a total depth of 4,250 feet. The test had a showing of gas at 1,450 feet and an oil showing at 4,150 feet where 22 feet of sand was found. According to reports from the area considerable royalty has changed hands and the entire county is checkerboarded with leases some of which is held by the major oil companies.

Another block of 13,000 acres of leases has been assembled on the western edge of Washita County by E. C. Hall and others. The leases were taken with the understanding that a wildcat test will be spudded by January 1, 1932. Another block of leases assembled by the same firm which totals approximately 14,000 acres is located in Townships 14 and 15 on the west side of Custer County, which also calls for a deep test.

Showings in Stephens

In Stephens County three tests have

(Continued on Page 77)

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW, Sec. 12-27-11w	Shut down 1,332 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE, Sec. 14-24-11w	Shut down 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW, Sec. 31-1-13	Rig.
Edgerton Edwards' No. 2 Rowland, SE NE NW, Sec. 6-1-15	Rig.
Price-McFann's No. 1 Webster, C SW SW, Sec. 34-8-26w	T. D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW, Sec. 22-11-22w	Waiting on cement to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW, Sec. 17-2-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor., Sec. 34-10-24w	Shut down 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW, Sec. 13-19-10w	Shut down 5,115 ft.

CADDO COUNTY

CHEROKEE COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.
La Piere et al's No. 1 Woods, C SE SE Sec. 27-17-21	Drlg. 721 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McCraw, NE NW, Sec. 2-1s-5	Drlg. 430 ft.
McCraw Oil Co.'s No. 1 Ward, NE SE, Sec. 35-1-8	Drlg. plug; showing 2,000,000 ft. gas 1,765-1,846 ft.; mudded off gas; shut down.
Whitney et al's No. 1 Miller, SE NE, Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

G. W. Stegner's No. 1 Doebel, C SW SW, Sec. 3-3-9w	Shut down 1,450 ft.

LE FLORE COUNTY

H. E. Dowd et al's No. 1 Unknown, SE NE, Sec. 17-3-32	Drlg. 1,112 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW, Sec. 9-24-6w	Shut down 5,850 ft.

(Continued on Page 70)

Buyer Is Found for Oil in Schurr Pool

Landowners and Producers Claim Stanolind Will Purchase Ratably if the Field Is Opened for Production

By W. A. Spinney
Staff Correspondent, Kansas Fields

Daily oil production of Kansas during the week ending September 26, averaged approximately 107,700 bbls. compared to 107,930 bbls. the previous week. Indications point to the opening of the Schurr Pool, in Rice County.

The meeting of the landowners and producers of the Schurr Pool, near Raymond in Rice County, with the Public Service Commission, was held at Lyons, about 17 miles north of the pool, September 30. The landowners with royalty in the field asked the Public Service Commission to allow the producers to open their wells and produce them at the rate of 200 bbls. per well a day. The landowners are charging that they are being deprived of any income whatsoever from oil wells on their land, notwithstanding that a purchaser has been found that will purchase the oil ratably from the field.

The production from the Schurr Field was pinched in soon after the discovery well was completed. The first well was completed in August, 1929, and since that time 11 wells have been completed in the field with a potential production of approximately 17,000 bbls. a day. The outlet from the pool has been limited. The Independent Oil & Gas Co. first purchased the pool's production at the rate of 50 bbls. per well and shipped the crude in tank cars from a loading rack nearby. The Independent Oil & Gas Co. withdrew as a purchaser in July, 1930, and the field was shut in until the Prairie Pipe Line Co. completed a line into the field in December, 1930. The Prairie Oil & Gas Co. purchased the crude oil during the month of December and then withdrew as a purchaser January 1, 1931, and the production in the pool has been shut in since.

The landowners claim in the application that they have found a purchaser and are asking the Public Service Commission to open the field. The Stanolind Crude Oil Purchasing Co. has agreed to purchase approximately 2,200 bbls. a day from the area if it is opened, by shipping the crude oil out through the Prairie Pipe Line Co.'s pipe line.

It is believed the Kansas Public Service Commission will change its decision made at the last meeting, held September 9, when the commission stated it feared if the lid was lifted and the wells permitted to produce at this time it might serve as a serious obstacle to the adoption of a general curtailment plan in the Mid-Continent area. Since that time three states, Kansas, Oklahoma and Texas, adopted a conservation plan at a meeting held in Austin, Tex., September 18, and ratified a curtailment plan limiting the State of Kansas to 110,000 bbls. of oil a day. The State produced only 107,700 bbls. of oil a day for the week ending September 26.

The application also asked the commission to permit the wells to produce 100 per cent for a time sufficient to recover the same amount of oil that has been produced from the Ritz-Canton Pool in McPherson County, and the Eastborough Pool in Sedgwick County. The Schurr Pool was discovered before either the Eastborough Pool, or the Voshell and Ritz-Canton Pools, in McPherson County.

The companies with oil production in the Schurr Pool are Phillips Petroleum Co., The Texas Company, Vickers Petroleum Co., Producers & Refiners Corp., Allison & Fitzwilliams, and Slick, Pryor and Lockhart. C. B. Davis has a gas well on the east side of the field that is producing from a shallow horizon.

Ritz-Canton Slipping

The Ritz-Canton Field in McPherson County, Kansas' largest field, shows a substantial decline in its potential production during the past week, compared to the previous gauge made August 1. In August the estimated potential production was 130,000 bbls. a day. During the week a total of 47 Viola lime wells in the field were estimated to have a potential of 48,000 bbls. a day. Gauges were being made and all but seven of the wells had been gauged when this was written. The decline in the potential production of the field from the August gauge is believed to be approximately 23,000 bbls. a day, with an increase in the number of wells.

The chat wells on the last previous potential gauges taken on a decline curve showed a total of 46,560 bbls. The combined potential production of the field now shows a total of 94,560 bbls. compared to the previous potential gauge of 117,000 bbls. a day.

On September 29, a meeting of the Ritz-Canton Pool operators and the representatives of the Kansas Public Service Commission was to be held in Wichita, and it was believed the allowable production would be increased from 10 per cent of the potential, which is the present allowable of the field. The field averaged approximately 17,000 bbls. of oil a day during the seven days ending September 23, and many believe the allowable will be increased to 20 per cent of the potential.

The Ritz-Canton Field is estimated to cover approximately 11,500 acres and was discovered about two years ago. The area covered by the field includes all or parts of 18 sections of land. Some express the opinion that approximately 10 per cent of the proven locations in the field have been drilled. The total recovery of oil from the field to September 1 was approximately 3,500,000 bbls.

Gas Area Growing

The gas area in the Ritz-Canton district is growing in importance. The latest well completed was Harris & Haun's No. 2 Overman, NE cor. SE Section 20-19-1w, which gauged approximately 38,000,000 feet of gas a day from the chat at 2,924-71 feet. The gas area in the Ritz-Canton district is located on the northeast edge of the field.

The output of gas is now estimated at better than 2,500,000,000 feet a day. The largest flow of gas is found in McPherson County, 1,300,000,000 feet a day, and the Hugoton gas field is second in volume with an estimated open flow of 1,000,000,000 feet a day. In Barber County 100,000,000 feet of gas a day has been developed. Rush County is being developed and now has approximately 87,000,000 feet of gas a day and in the newly discovered area in the northeastern part of Reno County, known as the Study-Turner area, an open flow of approximately 65,000,000 feet a day.

May Open Well in Stafford

The Midwest Exploration Co.'s No. 1 Richardson, SE cor., Section 36-22-11w, Stafford County, which was completed about a year ago and shut in, may be opened and operated. It was shut in after the company had swabbed 340 bbls. of oil in six hours and has remained shut in since that time. The total depth is 3,599 feet. It is believed the Stanolind Crude Oil Purchasing Co. will build a loading rack on the Missouri Pacific Railroad which is located nearby and buy the oil. The well is located on what is believed to be the Ellsworth Arch and the estimated potential production varies from 350 to 1,000 bbls. a day. If the well is opened and produced other tests may be started in the vicinity.

The only wildcat drilling test in Stafford County was Rosenthal, Stanolind Oil & Gas Co. and others' No. 1 Gray, C NE, Section 11-24-13w, which was drilling at 3,365 feet on the last reports.

In the Eastborough Pool, in Sedgwick County, prospects were bright for another well on the northeast side of the field. Magnolia Petroleum Co.'s No. 6 Wheeler, a twin well, in approximately NW cor. SE NE, Section 19-27-2, found the top of pay at 3,234 feet and was landing the casing on top of the oil sand.

Other tests in the vicinity were fishing. The Derby Oil Co. and Continental Oil Co. were drilling old wells deeper to the deep pay horizon. The oil showing found in the Continental Oil Co.'s No. 1 Black, SW cor. SE NE, Section 16-25-1, in the Goodrich Pool, in Sedgwick County, was estimated at 80 bbls. a day. Owners are landing the tubing preparatory to putting the well to pumping. The well was an old chat producer drilled deeper to the Viola lime found at 3,334-37 feet. It swabbed 257 bbls. of oil in 20 hours and when the owners started to drill the well deeper a showing of water was found. The well is located a half mile north of the other three producing wells in the pool, and indicates the area has considerable proven territory to be drilled for the deep pay horizon.

The wildcat test of Muth Brothers and others, No. 1 Beyer, NE cor. NW, Section 21-19-9w, Rice County, which swabbed 134 bbls. of oil in eight hours, is not to be drilled deeper at this time. It is shut in awaiting a pipe line outlet and it may be deepened later.

Recent developments in the Cheyenne Bottoms, in Barton County, bring up the question of turning the area into a lake and game refuge. This project may wait until a wildcat test for oil has been completed. Landowners have rejected the offers made by the Government to purchase the land and make a large inland sea of the area. The Government for some time has been trying to purchase the land in the Cheyenne Bottoms and Congress has appropriated the money for the project. Offers of $6 an acre have been rejected by landowners, as they want to see the district tested for oil and gas before disposing of the land.

Acreage has been leased in the area and several dry holes have been drilled in the district but they may not have been drilled deep enough. The Amerada Petroleum Corp. has a block of acreage in the western part of the area. Several sections of the block were covered with water on the surface when the leases were taken. It is reported that the company may drill a test in the area in the near future, it being located between two dry holes. The Amerada Petroleum Corp. does not want to give up the leases in the area until it has tested the oil possibilities and it does not want to pay the rentals on the acreage unless it can be developed.

Cowley County

Lehman and others' No. 1 Graham, NE cor. SW, Section 1-33-4, has been completed for 5 bbls. in sand 1,434-37 feet.

Greenwood County

Polhamus and others' No. 3 Johnson, NE cor., Section 21-24-12, is a rig under construction.

Kingman County

Panhandle Drilling Co. is building the rig for No. 1 Wetherall, SE cor. NW SW, Section 20-28-10w.

Marion County

Bender and others' No. 1 Bernhardt, SW cor. NE, Section 16-17-4, has drilled to 400 feet and shut down.

McPherson County

General Petroleum Co. and others made location for No. 1 Middleswart, NE cor., Section 9-19-2w. Carey and The Texas Company's No. 1 Holt, C NW SE, Section 13-19-2w, has drilled deeper from 2,946 feet to 2,953 feet and shut down with a hole full of oil. Syndicate Oil Corp. and Shell Petroleum Corp. made location for No. 4 Bicker, NW cor. SE SE, Section 36-19-2w. Harris & Haun's No. 2 Overman, NE cor. SE, Section 20-19-1w, has been completed for 37,602,000 feet of gas in chat 2,924-71 feet.

Rice County

Allison & Fitzwilliams' No. 1 Walsten, NW cor., Section 2-21-6w, is rigging up.

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location—	Remarks:
Syndicate Oil Co.'s No. 1 Buertz, NW SE SE, Sec. 13-18-12w	Shut down 2,440 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	U. R. 8-in. csg. 2,642 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	U. R. 8-in. csg. 2,460 ft.

CHASE COUNTY

Borden et al's No. 1 Atkinson, NW SE Sec. 18-18-7	Rig on ground.

CLAY COUNTY

Crystal Oil et al's No. 1 Tivier, SW cor., Sec. 19-8-2	Shut down 2,700 ft.

COFFEY COUNTY

Heyburg's No. 1 Kroft, SE SW SE, Sec. 30-22-14	Shut down 1,565 ft.

COWLEY COUNTY

Slocum et al's No. 1 Union National Bank, C SW SW, Sec. 16-35-4	Drlg. 550 ft.

DICKINSON COUNTY

Severs et al's No. 1 Lavengood, NE SW, Sec. 13-13-2	Shut down 4,170 ft.

ELLSWORTH COUNTY

Keyes Bros.' No. 1 Gregory, SW cor., Sec. 23-16-9w	Drlg. 2,960 ft.
Alyward et al's No. 1 Stratman, SE NW SE, Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; est. 2,000 bbls.; no pipe line connections.
Aladdin Pet.'s No. 1 Stoddenberg, C SW, Sec. 22-16-10w	Silicious lime 3,332-47 ft.; est. 1,500 bbls. a day; shut in.
Milton et al's No. 1 Kester, SE NE, Sec. 6-14-9w	Shut down 3,576 ft.; Conglomerate 3,214-50 ft.; hole full water; land 5-in. csg.

FINNEY COUNTY

National Ref. Co.'s No. 1 Wells, C SW, Sec. 13-23-30w	Drlg. 950 ft.

FORD COUNTY

Carter Oil Co.'s No. 1 Everett, C NE, Sec. 22-29-21w	Drlg. 5,838 ft.
Swain et al's No. 1 Taylor, C NW, Sec. 21-25-24w	Abnd., water in chat 4,985-5,010 ft.

GRAHAM COUNTY

Schleimeyer et al's No. 1 Clark, SW NE NE, Sec. 11-9-25w	Shut down 4,648 ft.

HASKELL COUNTY

Tree Oil Co.'s No. 1 Warner, C SE, Sec. 29-30-34w	Drlg. 2,350 ft.

HARVEY COUNTY

Liggett et al's No. 1 Davis, SW SE NE, Sec. 7-24-1	Drlg. 1,321 ft.
J. P. Flannigan's No. 1 Sheridan, C SW, Sec. 32-22-1	Drlg. 3,105 ft.

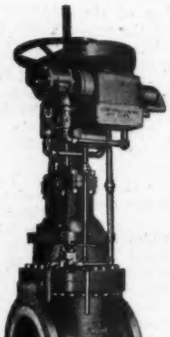
(Continued on Page 70)

Wherever
motor valves are wanted
but electric operation is impractical
use air motors

BECAUSE of special operating conditions which make electric operating hazardous, you need not give up remote control of valve units. At such points, Crane Air Motor Operated Valves can be used with safety.

They are more positive in operation and selective in position of opening than electric motors because they can be equipped for both automatic and hand control.

Crane Air Motor Operated Valves are ideal where the installation is liable to be submerged, affected by acid vapors, fire or explosion hazards; fire which so quickly destroys electric circuits does not affect their control. These valves with manual operation in connection with automatic operation are as sensitive and precise as hand operated valves.



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Well at Vinton, La. Flows 4,000 Barrels

Third Good Well in New Pool Northeast of Refugio. Two Deep Tests to Be Drilled in Lockwood Field, Fort Bend County

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Sept. 28.—One of e best wells completed on the Gulf Coast in several months was brought in late the past week at Vinton, Calcasieu Parish, Louisiana. This well, Vinton Petroleum Co.'s No. 11 Matilda Gray, flowed initially at the rate of 4,000 bbls. of pipe line oil daily and has given indication of being able to hold up as steady producer. Location of the well, 08 feet north of the south line and 195 et east of the west line of the Matilda ray 20-acre tract in Section 33-10s-12w, on the extreme north end of the field the deep sand pool which was opened that area early in 1930. The well is roducing from the 3,600-foot sand with feet of screen and marks a small exnsion of this horizon. It originally was mpleted in May as a small producer sand at 3,467 feet and since has been eepened to a total depth of 3,680 feet, here it tested salt water, and the hole s been sidetracked and drilled back to e 3,600-foot sand.

This area attracted considerable attenon during 1930 when a line fight drillg play took place there following the eep sand extension discovery and reulted in the completion of a long series good wells and the building up of a bstantial daily production. The first evelopment was in a 3,400-3,500-foot nd and was followed closely by a secnd play following the opening of a secnd sand around 3,600 feet. Production, owever, since has declined rapidly and evelopment gradually played out and ithin the past few months not more an one or two rigs have been kept runing.

Northeast of Refugio

Indications of a third good well in the ew pool northeast of the Refugio Field the lower coastal country were given e past week in a drill stem test of sand 5,813-42 feet in United Production o.'s No. 4 M. F. Lambert, William lews and L. Brown Survey. The test owed 14 fourbles of oil, 110 pounds ressure through quarter-inch chokes on e tool and casing. A string of 5½-inch O.D.) casing has been cemented at 5,-12 feet. Bottom of the hole is 5,925 feet, which depth the hole was cored in ale.

This well is a direct southeast offset the same company's No. 1-B W. J. ox, completed in August at a total depth 5,872 feet, and which in turn was 350 feet to the southwest of No. 1-A . J. Fox, brought in last May at 5,-86 feet as the discovery well of the ool. This pool is 1½ miles north of hat is known as the Lambert Pool, in hich three wells were completed during 930, and which is more than 2 miles the northeast of the main Refugio ield. The Fox area is of particular inerest in view of the possibility of linkg it with the Lambert Pool, and provg a large producing area. Wells in e new area apparently are in the same orizon as that in the Lambert Pool. A ecently abandoned deep dry hole sepates the two areas but due to irregurities and the spotted development in e Refugio district that does not necesarily mean the two pools eventually will ot be linked.

McFaddin District

In the McFaddin district of southwestn Victoria County just over the line om Refugio County, United Production Co. is preparing to test sand at 3,754-59 feet in its No. 5-A McFaddin, Maria Traviesa Survey. A drill stem test was made of that sand several weeks ago showing 400 pounds gas pressure but at that time the hole was deepened to a total depth of 3,828 feet, showing salt water in sand at 3,785-88 feet. This well is 2,800 feet northeast of the company's No. 4-A McFaddin, a dry gas well from the same horizon. At present there are three gas wells in this district, not including the T. B. Slick estate's 3,500-foot wildcat gasser 3½ miles to the north of United's wells, and The Texas Company's gasser, 4 miles to the west.

There has been very little new development in this district for some time although operators have been watching it closely. The Texas Company's No. 3 McFaddin, John M. Rine Survey, a half mile to the north and west of its gas well, has been drilling ahead. At present it is down 4,279 feet where a string of 9⅝-inch casing is being run to protect the hole following the encountering of heaving formation. Humble Oil & Refining Co.'s No. 1 O'Connor, several miles farther west and over the line in Refugio County, is drilling salt water sand below 3,314 feet. In the northern part of Victoria County, Houston Oil Co.'s wildcat, No. 1 Conrad, T.&N.O. Survey No. 1, is fighting heaving shale at 5,044 feet. This test tried to blow out at 5,003 feet but in a drill stem test there showed salt water.

Outside of the Vinton well previously mentioned there was only one other completion on the coast during the week, that being Gulf Production Co.'s No. 5 Boyt, Hankamer, Liberty County, which was deepened to a sand at approximately 3,173 feet and made a 220-bbl. pumper. It formerly was a well in sand at 2,769-91 feet.

Deep Tests at Lockwood

Two deep tests now are being drilled in the new Lockwood (Thompson) Field of Fort Bend County, in an effort to find lower sands. Cullen & West's No. 2-A Lockwood & Sharp, 800 feet to the north of the discovery well, No. 1-A, late in the week was drilling shale around 4,575 feet. The discovery well was completed in sand at a total depth of 3,087 feet. No. 2-A made a small well at 3,179 feet and went largely to salt water, indicating a sharp dip in that direction. This company's No. 3 A. P. George, 2,500 feet south of the discovery well, at latest report was drilling sand and shale below 4,300 feet. The three wells which have been completed in that area have found the pay around 3,500 feet. No. 2 George, although only 600 feet east of a producer, encountered the sand over 100 feet low showing salt water and now is drilling in search of possible lower sands. Although at the first this field gave promise of being an important producer developments to date have indicated a dome of very small area with sharp drops off the side from the top. While supposed to be a dome, so far no cap rock or salt has been touched and if the two tests now drilling deeper fail to find lower sands it is possible they may prove the existence of the dome believed to underly the present production. Not including No. 2-A Lockwood & Sharp, completed as a small producer but now drilling deeper, four wells have been drilled and completed as successful producers although water has shown up rapidly. Three tests now are drilling while derricks are standing for two others.

Lockport Test

Vacuum Oil Co. is trying to set 9⅝-inch casing in its No. 5-A Farquahar, a deep test in the Lockport Field. This test has found sand showing oil at a total depth of 6,455 feet. Vacuum also has been delayed in testing its No. 2 Cameron Meadows, second test drilled on its Cameron Meadows geophysical prospect in Cameron Parish. An effort is being made to set 7-inch casing with bottom of the hole showing oil at 5,260 feet. Some trouble has been met in getting casing to bottom.

At Jennings (Evangeline), Acadia Parish, Yount Lee Oil Co.'s No. 10 Housierre Latrielle, deep test on the southeast flank of the dome, late in the week was drilling hard sand around 7,600 feet. This is slightly below the 7,400-7,500-foot horizon in that area where Yount Lee Oil Co. has completed three producing wells, the deepest production on the Gulf Coast.

Barbers Hill

There have been no recent new developments in the active drilling play which is going on along the east flank of the Barbers Hill Dome. In going through the salt overhang nearly all the tests have encountered salt cavities which have slowed up drilling. As yet none of the nearly dozen tests which have been started since The Texas Company's No. 6 Wilburn found prolific production in a comparatively shallow at 4,509 feet above the "Big" lime has reached the pay horizon.

Hull Area

After a long suspension of operations at Hull, Gulf Production Co. has rigged up for No. 144 Dolbear and is starting drilling. Location of this test is 250 feet west of No. 97 and 200 feet southwest of No. 99, Jesse Devore Survey. Although within the past month there has been a gradual increase in the number of new operations, few additional locations were made the past week.

GULF COAST FIELDS AND WILDCATS

Week Ended September 26
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 5 Wilburn, Henry Griffith League, 350 ft. W of No. 4 in C of lease.... Drlg. salt 1,915 ft.; top of salt 1,440 ft.

Mills Bennett Production Co.'s No. 1 Gulf Fee, Henry Griffith League, 50 ft. out of NE cor., Strip 15..... T.D. shale and lime 1,039 ft.; cmtd. 13⅜-in. csg. 1,030 ft.

Gulf Production Co.'s No. 5 J. F. Wilburn, Henry Griffith League, 50 ft. from N line of tract and 210 ft. W of No. 1 ..... Drlg. hard sand and lime 3,812 ft.

Humphreys Corp.'s No. 6 E. H. Winfree, W. D. Smith Sur., 50 ft. from N line and 50 ft. from W line of tract ..... T.D. 5,886 ft.; sidetracked stuck drill stem 5,491 ft. and drilled to sand and lime 5,568 ft.; cmtd. back to 5,432 ft.

Humphreys Corp.'s No. 1 Ebanspacker, Henry Griffith League, 700 ft. from the N line and 70.6 ft. from the E and W lines of the tract ..... Pulling screen to deepen 4,469 ft.

Humphreys Corp.'s No. 8-H Kirby, Henry Griffith League, 333 ft. W of No. 6-H Kirby and 70 ft. N of S line ..... Trying to plug salt cavity 2,099 ft.

Humphreys Corp.'s No. 2 Tarbutton, Henry Griffith League, 385 ft. from E line and 21 ft. from N line of tract ..... Rock 1,317 ft.; cmtd. 13⅜-in. csg.

McAlbert Oil Co.'s No. 4 Wilburn, Henry Griffith League, 200 ft. W of No. 3 in C of lease, N and S .. Drlg. hard sand 3,836 ft.

Rio Bravo Oil Co.'s No. 2 Fisher (W.O.), W. D. Smith Sur., 50 ft. out of NW cor. of tract ..... Trying to perforate pipe; T. D. 5,390 ft.

Sinclair Oil & Gas Co.'s No. 8 Wilburn, Henry Griffith League, 350 ft. W of No. 7 and 48 ft. from N line of tract ..... Lime rock 1,282 ft.; cmtd. 12¼-in. csg.

Sun Oil Co.'s No. 2 Winfree, W. D. Smith Sur., 50 ft. E of SW line and 150 ft. N of S line of tract ..... Drlg. salt 4,938 ft.; top of salt 4,800 ft.

Sun Oil Co.'s No. 11 Wilburn, Henry Griffith League, 550 ft. W of No. 5 and 50 ft. from N line of tract.... Rock 1,154 ft.; cmtd. 16-in. (O. D.) csg.

The Texas Company's No. 7 Wilburn, Henry Griffith League, 116 ft. S of Humphreys Corp.'s No. 8-H Kirby ..... Drlg. salt 1,569 ft.

The Texas Company's No. 2 Lawrence, Henry Griffith League, 240 ft. from E line and 412 ft. from N and S lines of strip ..... Drlg. gumbo and lime 1,164 ft.

HUMBLE—HARRIS COUNTY

Southern Coastal Oil Co.'s No. 3 Perkins, John Jones Sur., 150 ft. N of No. 2 ..... Derrick.

Sun Oil Co.'s No. 25 Bender, W. B. Adams Sur., 1,155 ft. from C of R.R. on an extension of the N line of the Bender North Addition and 8 ft. S..... Rig.

The Texas Company's No. 24 Kohler (W.O.)..... T.D. 2,990 ft.; milled out 2,739 ft. and drlg. gumbo 2,945 ft.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 2e0 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur. ..... Drlg. shale and boulders 1,117 ft.

The Texas Company's No. 3 Kuhn, 557 ft. S and 160 ft. W of NE cor. of the Mary E. Hall Sur. No. 2 ... Location.

HANKAMER—LIBERTY COUNTY

Gulf Production Co.'s No. 5 Boyt (D.D.), H.&T.C. Sur. No. 22, 3,098 ft. from E line and 2,502 ft. from S line of tract ..... Comp. pumping 220 bbls. 3,173 ft.

HULL—LIBERTY COUNTY

Gulf Prod. Co.'s No. 144 Dolbear Jesse Devore Sur., 250 ft. W of No. 97 and 200 ft. SW of No. 99..... Spudded.

Weneedan Oil Co.'s No. 2 Palmer, Chas. Underton Sur... Sand showing oil 1,965 ft.; set screen.

Sun Oil Co.'s No. 10 Carr ..... Drlg. gumbo 590 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 33 Taylor, James Hamilton Sur. No. 52, 300 ft. E of No. 32 and 50 ft. from S line ..... Rig.

Southern Petroleum Co.'s (Tilton et al) No. 1 N. C. Barnes, B.B.B.&C. Sur. No. 1,028, 15 ft. from N line and 25 ft. from W line of Blk. 49, Jones Subd... Rock 1,210 ft.; to set csg.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 20 Cade, N. Fitzsimmons Sur., 161 ft. W of No. 15 and 146 ft. SW of No. 17 ..... Shut down 60 ft.

Yount Lee Oil Co.'s No. 22 Cade, N. Fitzsimmons Sur., 125 ft. S of No. 21 ..... Drlg. hard lime and shale 4,126 ft.

(Continued on Page 69)

"THE PROOF OF THE PUDDING"

Combines and excels all the best features of all the good welders now on the market . . . plus new features all its own.

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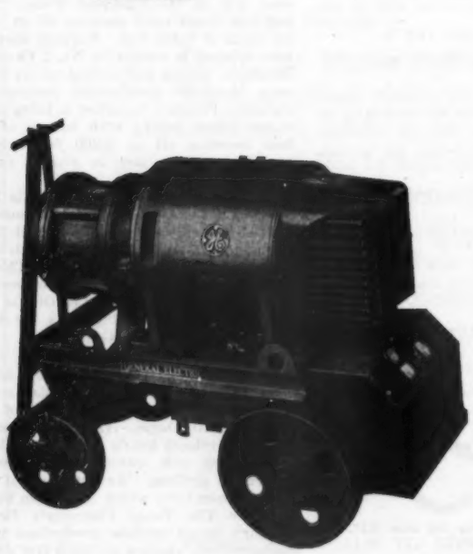

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But, in order that trade names, individual preferences, etc., might not influence the operator, the six machines were placed behind a screen and adjusted for identical welding conditions. Unidentified leads were brought out and the operator was given the opportunity to weld from each set of leads with no restriction as to method or time.

As a result of this test, the new G-E arc welder was awarded first place by 75 per cent of the operators, and second place by the other 25 per cent.

This was but one of the many long and exacting tests to which the new welder was subjected before General Electric placed its monogram upon it. This is another reason why we say, "Buy no welder until you have thoroughly investigated through your nearest G-E office."

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GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

La.-Ark. Area Reports Only Gassers

Not an Oil Well Completed in Two Weeks in Big District. Good Gas Wells in Louisiana and Mississippi

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Sept. 28.—For the second consecutive week, this division failed to report an oil well in its list of completions, but to offset this, there were three good gas wells, two of which were in North Louisiana and one in Mississippi. Morehouse Parish, in the old Monroe Field, furnished one of the gassers with the completion of Carbons Consolidated's No. 5 fee, in Section 21-20-4e. The well had an intial flow of 19,368,000 feet of gas with 580 pounds rock pressure from a total depth of 2,155 feet. The location of the new gas well is in the southern part of Morehouse Parish, just across the line from Ouachita Parish. In the Richland Field, Southern Carbon Co.'s No. 9 Rosengrant & Ducomb, Section 18-17-6e, gauged 38,952,000 feet of gas from 2,440 feet and with a rock pressure of 875 pounds. Rankin County in the Jackson Field, Mississippi, reported the other gasser when Muse & Muse completed their No. 1 Webb, Section 12-5n-1e, at 2,396 feet with an estimated initial flow of 35,000,000 feet of dry gas. This well was originally started by Harding & Flint in May of this year, was drilled to 880 feet by these operators and shut down for lack of funds. A few weeks ago it was taken over by the present operators who finished it in record time as one of the best wells in the field.

Another test on the eastern edge of the Richland Field was a disappointment. The Richland Operating Co.'s No. 1 Baremore, Section 19-16-7e, tested only 200,000 feet of gas from 2,409 feet, was deepened to 2,450 feet without increasing the flow and was abandoned at this depth. The Arcadia Drilling Co.'s No. 1 Atkins, a wildcat in Section 27-18-6, Bienville Parish, was found dry and abandoned at 2,385 feet in the Nacatoch formation. The test checked much lower than did a well drilled to the east in that vicinity about one year ago, and which showed some oil from the Nacatoch. Operators of the Flint River Oil Co.'s No. 1 De Moss, Section 22-22-13, in the northern part of Bossier Parish, finally decided to go no deeper and the well was abandoned at 3,046 feet. This wildcat was near an old well drilled in that vicinity in 1916, which came in as a 1,500-bbl. gusher and flowed for several days and went dead. The original well was never revived and other tests drilled in that immediate vicinity have never encountered even a good showing of oil. The Zwolle chalk rock field of Sabine Parish registered another dry hole within the proven area, when The Texas Company abandoned its No. 1 L. C. De Latin, Section 3-7-11, at 2,625 feet. The well tested dry from 2,402-52 feet and from 2,502-52 feet, not a show encountered to the total depth.

Disappointing Wildcats

Several wildcats that have held much promise lately seem doomed as failures. Last week, S. S. Meek, Trustee's No. 1 Wagner, Section 5-12-14, cored sandy shale showing some oil from 2,865-85 feet, but a drill stem test at this depth resulted in salt water with no oil show. In Caddo Parish, W. P. Wallace, Trustee's No. 2 Cunningham-O'Conner, Section 15-17-14, pulled 6-inch casing which was set at 2,042 feet, and reset at 960 feet. The hole has been bridged and the crew is testing in the Nacatoch formation at 1,000 feet. The Langbridge Oil Co.'s No. 1 Stephens, Section 17-9-11, northern Sabine Parish, has been deepened to 3,626 feet, where a drill stem test developed about the same amount of oil in the hole as resulted from a like test at 3,366-69 feet. The pay is evidently coming from the latter depth as it is the only streak of oil-bearing sand that has been encountered. The well, if put on the pump, would probably produce 15 to 20 bbls. daily, but it is doubtful that the owners will do this in the face of the uncertain prevailing prices of crude. The oil from this well is of high grade, testing 39 gravity. R. L. Gay's No. 1-A Long-Bell Lumber Co. in Section 10-8-13, northwest of the proven Zwolle Field, after developing 200 feet of high grade oil in the hole with 600 feet of salt water, at 3,623-37 feet, is drilling ahead in lime at 3,673 feet.

In La Salle Parish, the Gulf Refining Co. has reached a depth of 3,134 feet in its No. 1 Tremont Lumber Co., Section 10-9-2e. No show of any consequence has been encountered anywhere along the log. Another wildcat that will be watched with interest has started operations in Vernon Parish. It is the Exchange Petroleum Co.'s No. 1 White & Grandin, Section 29-3n-7w, the latest drilling report giving a depth of 750 feet. The operators have assembled about 50,000 acres in this vicinity, 12,000 acres of which is in a solid block surrounding the test. Franklin and others have taken over Dr. W. N. Hankins' No. 1 Newell, Section 12-19-11, a wildcat 2 miles northeast of the Bellevue shallow field in Bossier Parish. The total depth of the well now is around 1,300 feet with a contract calling for a 2,100-foot test. The Trinity gas pay is found in Oolitic lime around the 1,800-foot level about 2 miles south of the Bellevue Field, and a thorough test to the north will be closely watched.

Expect Good Well

In the Urbana Field of Union County, Arkansas, Wilson & Chapman are arranging to drill plug and bail in their No. 1 H. Norman, Section 3-18-13. The total depth of this well is 3,583 feet, and a recent drill stem test of 16 feet of oil sand developed 2,400 feet of oil in the hole in 17 minutes. It is expected to be the best well yet brought in in this pool. In the Smackover Field of Union County, the Lion Oil Refining Co.'s deep test, No. 9-A Hayes, Section 4-16-15, is making slow progress with practically barren results so far. The latest report gives the test coring brown sandy lime, showing dead oil and salt water from 5,633-39 feet. Boling and McLeon, in Ouachita County, have set 6-inch casing at 2,030 feet and are bailing to test their No. 1 Neely in Section 25-15-16.

Wildcatting in Arkansas

Several wildcats are active in Arkansas, among them being the Drillers Development Co.'s No. 1 Pickering, Section 1-17-16, in the southern part of Union County. The test was started on September 12, 10-inch surface casing was set at 42 feet, and it is now drilling at 700 feet. In the gas area of Crawford County, the Ozark Natural Gas Co. has spudded in on its No. 1 Hammonds, Section 29-10-29. The Zepp Oil Co. is drilling in hard sandy gumbo at 2,375 feet on its No. 2 Hillman in Section 20-10-13, Dallas County. In Pike County, E. R. Henderson encountered an unexpected flow of fresh water at 338 feet in his No. 1 East, Section 13-9-23, and is arranging to set 8-inch casing below the water sand.

In East Texas

Wildcatting in Shelby County, East Texas, continues brisk, though many of the rigs that were running recently have temporarily shut down. K. H. Francis is drilling at 2,950 feet on his No. 1 Mimms, Mary Smith Survey, and Henry Maulding's No. 1 Frost Lumber Co., A. D. Fountain Survey, is in sandy shale at 3,125 feet. McRoby and others' No. 1 Windham, William Leach Survey, had enough gas at 2,282 feet to force mud from the hole, and the operators will probably set 8-inch casing for a test at this depth. Schultz and others are drilling in broken lime at 4,250 feet on their No. 1 Hughes, J. Clay Survey.

Some of the wells in proven areas of the different fields are acting like wildcats in the results obtained. In the Richland gas field, Southern Carbon Co.'s No. 1 Noe, Section 24-17-5, bailed dry at 2,440 feet, and a test at 2,452 feet resulted in an initial flow of 7,000,000 feet of gas, but in a short time the gas flow stopped completely. Another test was made from 2,452-62 feet which developed 300 feet of salt water in the hole in 17 minutes. Arrangements are being made to deepen the well. The National Drilling Co.'s No. 1 Singletary, Section 20-18-7, Richland Parish, seems to have passed up the first pay sand as they are trying to sidetrack 120 feet of drill stem at 2,515 feet. In the Zwolle Field, Sabine Parish, the Loring Oil Co.'s No. 18 Bowman-Hicks, Section 15-7-12, tested dry from 2,409-2,575 feet and it is now testing at 2,675 feet. The Pelican Natural Gas Co. had better results in Zwolle, having a hole full of oil in its No. 10 Louisiana Long Leaf Lumber Co. in Section 10-7-11. The total depth of this well is 2,387 feet, and arrangements are being made to put it on the pump.

Daily Average Runs

There was a net decrease of 475 bbls. daily from the fields of North Louisiana and Arkansas, the former declining 520 bbls., while the latter had a net gain of

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WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks:
Arcadia Drlg. Co.'s No. 1 Atkins, 175 ft. W, 120 ft. N, SE cor. NW NE, Sec. 27-18-6	Dry and abnd. 2,364 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-23-14	S.D. 2,890 ft.
Flint River Oil Co.'s No. 1 DeMoss, 200 ft. S and E, NW cor., SE NW, Sec. 22-22-13	Dry and abnd. 3,046 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	Reaming to bottom 1,350 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11	S.D. 1,004 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13	S.D. 1,600 ft.

CADDO PARISH

W. P. Wallace, tr.'s No. 2 Cunningham-O'Conner, 310 ft. S, 940 ft. E, NW cor., Sec. 15-17-14	Plugged back, set 6-in. 960 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	Set 12-in. csg. 110 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-2e	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	T.A. 3,097 ft.

CLAIBORNE—SUGAR CREEK

United Gas Public Service Co.'s No. 1 Treadwell & Hawk, 1,470 ft. S, 1,395 ft. E, NW cor., Sec. 6-19-5w	Drlg. lime 3,910 ft.

DE SOTO PARISH

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15	S.D. 2,350 ft.
S. S. Meek, tr.'s No. 1 Wagner, 300 ft. S and E, NW cor. SE NW, Sec. 5-12-14	Coring 2,890 ft.
Ben Merritt, tr.'s No. 1 Wallums, NE cor. SW SW, Sec. 19-12-13	Set 6-in. csg. 2,580 ft.; T.D. 2,657 ft.
E. T. Oakes' No. 1 R. H. Bryant et al, 300 ft. N and W, SE cor. NE NW, Sec. 30-13-15	Coring 2,760 ft.

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LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location—	Remarks:
J. T. McCormick's No. 1 C. B. Christian, 330 ft. S, 300 ft. W, NE cor. SW, Sec. 27-21-15	S.D. 1,335 ft.
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15	S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	Set 10-in. 150 ft.; S.D.

CADDO PARISH—RHODESSA AREA

United Gas Public Service Co.'s No. 1 H. J. Bussa, Sec. 33-23-16, 990 ft. W and 660 ft. S of NE cor.	Began Sept. 17; set 12½-in. 375 ft; drlg. 1,535 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4	Location.
Carbon Consolidated's No. 5 fee, 1,945 ft. N, 3,046 ft. W, SE NE, Sec. 21-20-4e	Completed for 19,368,000 ft. gas 2,155 ft.

OUACHITA PARISH

Carbon Consolidated's No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N, and 7,475 ft. W of corners of Secs. 25, 26 and 49, in Sec. 50	Location.

RICHLAND PARISH

Southern Carbon Co.'s No. 1 J. A. Noe, Sec. 24-17-5, 3,291 ft. S, 660 ft. E, NW cor.	Tested S.W. 2,462 ft; arranging to deepen.
Southern Carbon Co.'s No. 1 Pollard, Sec. 26-16-5e, 2,710 ft. S and 563 ft. W of NE cor.	Location.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 2,640 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6	Rigging up.
Southern Carbon Co.'s No. 7 Rosengrant & Ducomb, Sec. 24-17-5e, 696 ft. W and 660 ft. S NE cor.	Rigging up.
Southern Carbon Co.'s No. 9 Rosengraut & Ducomb, 1,320 ft. N, 660 ft. E, SW cor., Sec. 18-17-6e	Completed 38,952,000 ft. gas 2,440 ft.
United Gas Public Service Co.'s No. 2 Cummings, 3,465 ft. W, 1,320 ft. N, SE cor., Sec. 24-17-5e	Drlg. 2,359 ft.

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Pool Southwest of Pettus Gets Notice

Batch of Completions in Southwest Texas. Noticeable Increase in Activity and Many Deals Reported Pending

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Sept. 28.—There was quite a batch of completions in Southwest Texas last week, rather colorless, however, for the most part and of no particular significance and only four new locations which is a decided drop from the last few weeks during which the number has been rather large for dull times. But though the number of new locations dropped there is a very noticeable increase in activity and a lot of deals are pending that would indicate quite a little steady increase in activity can be reasonably expected.

Two features in the coast country are the Carsil Oil & Gas Co.'s No. 3 McGill in northwestern Jim Wells County, reported last week as increasing in gas pressure, and correspondingly in importance. It has continued still further to increase and has developed a shut-in pressure above 900 pounds.

Another feature is the Stanolind Oil & Gas Co.'s No. 1 Stratton in southwestern Nueces County, which indicated a couple of weeks ago it would make a big gasser, 8 miles south of the Agua Dulce Field which is the nearest production, but which when completed made only 8,000,000 feet of gas wet with gasoline and 1,030 pounds pressure but which dropped in both volume and pressure. It has since succeeded in killing the well and pulling the liner and cored deeper from 4,752 to 4,765 feet and over the week-end was testing again.

Balcones Fault Zone

In the upper end of the Balcones Fault and south of the Brazos River, Citizens Oil Development Co.'s No. 2 Forewood in Williamson County got sulphur water in the Edwards at a total depth of 1,586 feet and is abandoned. It topped chalk at 770 feet and Georgetown at 1,430 feet. No. 1 Forewood had a showing of oil which encouraged the drilling of No. 2 Forewood.

The deepest test geologically is Hays & Gee's No. 1 Johnson, 6 miles south of the city of Georgetown, which topped the Glenrose at 670 feet and now has a fishing job at 1,336 feet.

In northern Bastrop County Mid-States Oil & Gas Co. is going to deepen and complete the Prairie Lea Production Co.'s No. 1 F. Wickmann in the S. N. Castleberry Survey about 3 miles southwest of Paige, which was started a couple of years ago.

Chief attention centers in Guadalupe County where the Humble Oil & Refining Co.'s No. C-1 Denman, an east offset to John F. Camp's No. 1 Sue Denman, had a total depth at the week end of 2,472 feet and had set casing. Camp's well came in at 2,505 feet for around 8,000 bbls. a day. The Camp well had only 45 feet of chalk and the Humble well had 150 feet and set casing at 2,472 feet with top of Georgetown at 2,437 feet. The chalk was topped at 2,145 and base of the chalk was 2,295 feet. The Camp well, it will be remembered, is a mile southwest of production in the Darst Creek Field and seems to have cut the fault. The Humble test, an east offset, is therefore an interesting and important test and should be in early in the week.

With the exception of some minor matters such as abandonment of the Linne & Clark's No. 1 Linne in the western part of the county 4 miles south of Marion at 1,570 feet with top of the chalk at 1,552 feet, and the starting of Bolling and others' No. 1 Linne in the same neighborhood, the eastern end of the Balcones has been rather quiet. The tests on the Linne tract in the V. Cortario Survey is in the New Berlin district that was wildcatted pretty vigorously a few years ago. The new test is about 3 miles northwest of New Berlin.

West of San Antonio in the Fault zone Wray & Dunbar's No. 1 Roche in northeastern Frio County has reached 2,240 feet and is waiting for a blowout preventer. It was at 2,340 feet that No. 1 Burns, less than half a mile away and drilled earlier in the year by the same operators, blew out and showed a lot of gas. It was afterward carried down to the Edwards, where it had a showing of oil but could not be completed. Something interesting should develop in No. 1 Roche this week.

In Medina County tests have made more hole but developed nothing of importance.

The spot that is likely to get chief attention as having possibilities of putting new production on the market is the new pool a mile southwest of the Pettus Pool in Bee County. Some wells in the Pettus Townsite Pool have already produced as much as 40,000 bbls. to the acre and the field has been producing only a year and a half and still going good.

Damac Oil Co.'s (J. M. Davis) No. 1 Ray, a mile southwest, with a fault cutting it off from the townsite pool, opened a new pool with a well that was good for more than 1,000 bbls. a day at 3,925 feet. T. B. Slick estate was down at the week-end to around 3,000 feet in a north offset which will be the first test drilled since the bringing in of the discovery well and Buchanan & Lefevre's No. 1 Ray, 3,154 feet west of it, which started a couple of days after Slick, is far down on a hole that will test the dimensions of the new field. It seems likely that a drilling campaign has definitely started in this new territory with a possibility it may spread quite a distance to the southwest.

The two wildcats in Bee County, Humble's No. 1 Thompson in the southeastern part of the county and Hughes' No. 1 Martin, just south of the Simms gas field, are just getting started.

During the week Olmstead & Russell, who purchased from S.R.C. Oil Co. Block 37 of the townsite of Pettus with a well on it, deepened the test slightly and brought it back in as a 125-bbl. pumper.

Duval County

Duval Oil Corp. got a 1,500-bbl. well in No. 4 Bishop Cattle Co. in the extension to the Schoolfield-O'Byrne Pool which runs about normal with other wells. Its No. 3, which came in about three weeks before, was only a 75 to 100-bbl. well, which is about the smallest well in the field. It is also the farthest north producer and the Humble is now drilling its No. 1 White, a north offset to it. Duval Oil Corp.'s No. 4 Bishop Cattle Co. at 1,500 bbls. is about the size of the best wells of the field and location has been made for No. 5 Bishop Cattle Co.

Nueces County

The only other place where there is much development work is in the Saxet Field and last week the only development was more depth. Neal-Milton and Kepley's No. 1 Roark seems to have passed the depth at which the Saxet Oil Co.'s No. 6 and No. 7 Dunn picked up production at 4,300 feet. No. 1 Roark is last reported at 4,495 feet and drilling. A drill stem test at 4,267 feet failed to show anything much and one at 4,388 feet showed only a little oil. The test is about 2,000 feet northwest of the nearest of the Dunn producers.

The Gulf Coast Oil Co.'s No. 1 Elder is last reported at 4,265 feet and in sand and showing oil. It is on the north edge of the field and about 2 miles due west of the Neal-Milton-Kepley No. 1 Roark. It topped a sand at 4,262 feet and was fixing to make a test.

North of the Balcones

Only two tests north of the Balcones Fault seem to be making any headway at this time. Evans & Gant's No. 2 Love in Kerr County, a mile south of No. 1 Love, is last reported at 2,678 feet. It has an elevation of 2,380 feet compared with 2,305 for No. 1 Love. No. 1 Love got a pretty good showing of oil at 2,552 feet, enough to make a barrel or so a day. No. 2 Love failed to get any such showing. Accounting for the 75 feet difference in elevation, it should have got the showing at 2,627 feet, and is now 51 feet below that.

The other test making headway is Theo Hicks' No. 1 Specht in the south point of Blanco County. It is to be a 3,500-foot test and has been making good progress for a cable tool country. It is down 960 feet and held up temporarily with a fishing job. This test, due to its scheduled depth of 3,500 feet, promises to be interesting when it gets a little deeper and will furnish a lot of geological information that is wanted at least.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Tom Draper's No. 1 Trueblood, 250 ft. from N line, 1,440 ft. from W line of tract, John Neill Sur.	T. D. 650 ft.; temp. abnd.
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1.	T. D. 2,940 ft.; drlg.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan	T. D. 1,410 ft.; shut down.
Theo. Hicks' No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm in Thomas M. Fowler Sur. No. 27 in extreme south point of county	T. D. 960 ft.; fishing.
Lilies Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 1,100 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 574 ft.; shut down.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,260 ft. to N line, Sur. No. 94	T. D. 712 ft.; shut down.

BASTROP COUNTY

W. A. Allen's No. 1 Birmingham, James Stewart Sur.	T. D. 1,215 ft.; drlg.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm in Thos. Christian Sur.	Rigging up.

BELL COUNTY

Fields & Lange's No. 1 C. S. White, 150 ft. from S line, 300 ft. to E line of farm in Nancy Roberts Sur.	T. D. 297 ft.; drlg.
Hartman Drilling Co.'s No. 1 E. L. Deaver, 600 ft. to N and 300 ft. to E line of farm, in Nancy Roberts Sur.	T. D. 482 ft.; shut down.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur.	Spudded in.
James Scroggins' No. 2 Warrick, Ingram Sur.	T. D. 1,425 ft.; fishing.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore	T. D. 1,870 ft.; no report.
Hughes et al's No. 1 Martin, 1,000 ft. S of Simms Oil Co.'s No. 1 Holzmark in John Lyford Sur.	Rigging up.
Humble Oil & Ref. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tract in Garrett Roache Sur., S part of county	Rigging up.
Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur.	T. D. 3,544 ft.; standing.

BEXAR COUNTY

J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line of C. Logan Sur.	T. D. 890 ft.; drlg.

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SOUTHWEST TEXAS PROVEN AREAS

COOKSEY POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Witherspoon Oil Co.'s No. 1 Anoil, 412 ft. W of C of E line of tract in J. W. Riall Sur.	70 ft.; abnd.

DOBROWOLSKI POOL—BEXAR COUNTY

W. S. Rogers et al's No. 1 L. Dunnop, Juan Montez Sur.	T. D. 612 ft.; shut down.
Gatlin Oil Co.'s No. 8 Ida A. Beck	T.D. 325 ft.; drlg.

PETTUS POOL—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr County	T. D. 3,930 ft.; standing.
Geo. N. Moore et al's No. 2 Freeland, in John Pace Sur., 1,000 ft. from S line, 600 ft. from E line of survey.	T. D. 4,297 ft.; standing.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur.	T. D. 4,935 ft.; drlg.
T. B. Slick estate's No. 1 Ray, in Kerr Sur., 210 ft. W of NE cor. of John W. Williamson Sur. and 330 ft. N of N line of same survey (location changed)	T. D. 2,500 ft.; drlg.
Buchanan & Lefevre's No. 1 Ray, 3,154 ft. from E line, 150 ft. from N line of John W. Williamson Sur.	T. D. 218 ft.; set surface csg.
H. H. Weinert's No. 1 Ray, 150 ft. from N and E lines of lease in John W. Williamson Sur.	Derrick.
Houston Oil Co.'s No. 2 Portis, 330 ft. from N and W lines of A. Smalley Sur.	Location.
Olmstead & Russell's No. 1 City, center Block 37	T.D. 3,903 ft.; rigging up to deepen.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tract, A. Floyd Sur.	T. D. 2,572 ft.; set csg.; standing.

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Duval Oil Corp.'s No. 4 Bishop Duval Land Co., 1,650 ft. from W line, 330 ft. from S line of N half of Survey No. 135	T. D. 2,372 ft.; completed 1,500 bbls.
Magnolia Petroleum Co.'s No. 4 Wilson, 1,520 ft. from W line, 300 ft. from N line of Sur. No. 134.	Rigging up.
Humble Oil & Refining Co.'s No. 1 White, 330 ft. from S line, 1,650 ft. from W line of Sur. No. 58.	T. D. 500 ft.; drlg.
Thomas & Tarver, Inc.'s No. 3 Bishop Cattle Co., 2,346 ft. from S line, 1,005 ft. from W line of Sur. No. 135.	T. D. 2,200 ft.; drlg.

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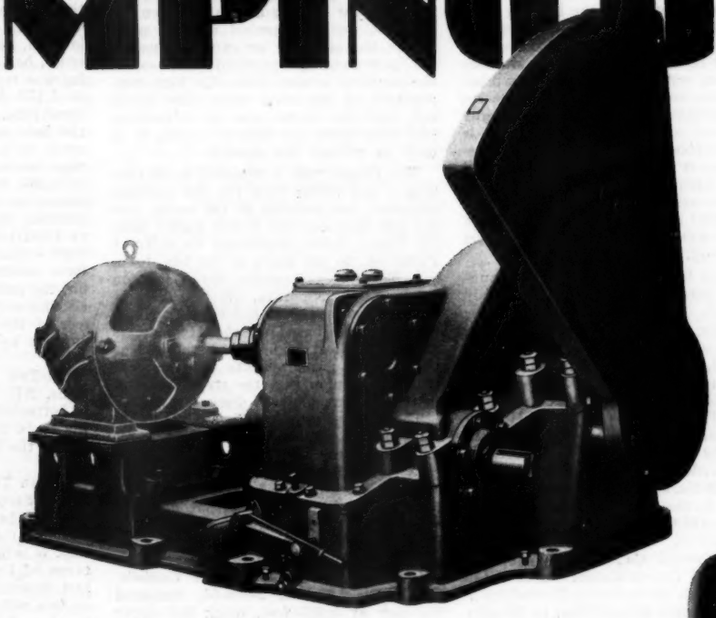
IDEAL

"Reg. U. S. Pat. Off."

DOUBLE REDUCTION PUMPING GEARS

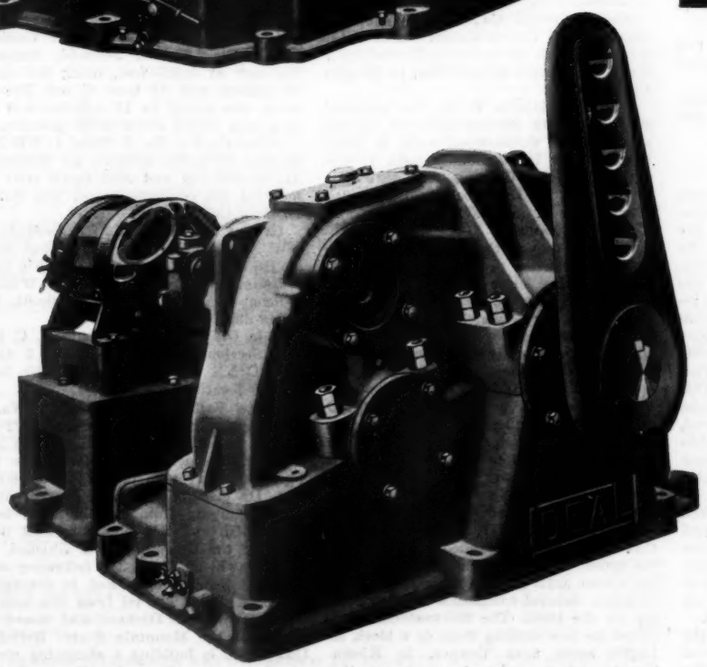


TYPE C

For motors up to 55 H. P.

◆

Descriptive Bulletin No. 57 sent on request.



TYPE D

For motors up to 15 H. P.

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Descriptive Bulletin No. 64 sent on request.

THE NATIONAL SUPPLY COMPANIES

Colorado Operations Are Increasing

Prairie Makes Location in Greasewood Area and Acquires Additional Blocks. New Locations in Hobbs Pool

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Sept. 28.—Prairie Oil & Gas Co. has made a location in the Greasewood area, in Colorado, and acquired several additional blocks along the trend of the new wildcat play. Frank E. Kistler & Co. has closed for several state leases calling for four wells. A wildcat is being started southeast of Greeley by the Gulf States Oil Corp. Several wells in northeastern Colorado are due for completion the coming week and upon the outcome will depend in a large measure the extent of this fall's drilling activity.

Two new locations were made in the Hobbs area in New Mexico, one in the pool proper and the other 2½ miles to the southwest. The Rattlesnake Dome in northwestern New Mexico is showing an increase in drilling activity.

There were no completions reported in Wyoming and one new operation is getting under way on the Hidden Dome in Washakie County. A well west of the Osage Field is ready to drill in and shows that the sand dips more than 1,100 feet within a mile.

One well, a 9,000,000-foot gasser was completed in the Cut Bank Field in Montana. One new location was made in the Border Field and the Prairie Oil & Gas Co. has succeeded in getting through the big water horizon on the Porcupine Dome which heretofore baffled all efforts to test lower formations.

The Ohio Oil Co. is starting a test well on the gas acreage recently acquired in Payette County, Idaho.

The Utah Southern Oil Co. is preparing to drill deeper in its Salt Valley test in Utah.

COLORADO

Weld-Morgan Counties

Deals for acreage, the entrance of new companies into the district and preparations for the drilling in of several key wells overshadowed other events of the week in the northeastern Colorado area. The Prairie Oil & Gas Co., whose entrance into the Greasewood area was reported last week, has made a location for its No. 1 Mortier, C NE NW, Section 2-5n-57, on the Morgan County side and 5 miles to the southeast of the Patterson and Ida Johnson producers. This block was formerly held by the Eureka Syndicate, composed of Pauline Holland, Ross Heaton and associates. Some additional acreage around the Eureka block also was obtained. This test will be drilled at once.

The Prairie company also has taken over the Furrow tract in Sections 27 and 34-6n-61, in Weld County, 1½ to 3 miles southwest of the two producers. This tract includes the E half and E half of W half, Section 27, and the forties on the east and south sides of Section 34.

Another important deal made by the Prairie company was the acquisition of a block of close to 10,000 acres in the Crow Creek district in Weld County, 7 miles to the west of the Greasewood wells. Thirty-five separate leases were put on record, mostly in Townships 6 and 7n, Range 62w. While the block is fairly well consolidated, there are a number of holes in it. The leases were originally taken by Dean T. Prosser and George Brimmer, of Cheyenne and assigned to the Prairie company. The block is to the east of Crow Creek, Cornish and Fosston and to the west of Osgood and 3 to 5 miles northeast of Greeley.

To the south of the Prairie block in the Crow Creek district, the Gulf States Oil Corp. has blocked up acreage on what is known as the Box Elder Dome in Townships 4 and 5n, Range 63w. Location has been made for a test to be drilled with cable tools in Section 6-4n-63, 2½ miles south of Kuner and 15 miles southeast of Greeley. This company was incorporated under the laws of Colorado on September 14. The directors are R. E. (Bob) Sweeney, William Leist and Crawford E. Smith. The charter was the first taken out under the new incorporation laws enacted by the last session of the legislature and gives the company a perpetual existence. The new law is quite favorable for incorporating oil companies and it is expected that a number will take advantage of its provisions. The Box Elder structure is reported to embrace 15,000 acres and to have a closure of 150 to 200 feet. The Dakota is logged at 4,500 feet.

The area in southwestern Weld County, as a result of these and previously made deals, is expected to come in for considerable attention. Several weeks ago the Oil Lease Purchase Association, Inc., through J. W. Clayton, turned a block of 5,000 to 6,000 acres in Townships 2 and 3n, Range 65w, to the Continental Oil Co. This block is between Hudson and Milton Lake and north of Hudson. The Derby Oil Co. has some acreage checkerboarded through the block. The Midwest Refining Co. has 8,000 acres to the north in the Beebe Draw district and the Retter Oil Co. is drilling a test to the southeast.

The California Co., subsidiary of the Standard Oil Co. of California, filed for record a block of leases in Townships 7 8 and 9n, Ranges 58 and 59w, in Morgan County.

Frank E. Kistler & Co. has acquired state leases in Section 36-6n-61, to the south of the Greasewood wells in Weld County, and in Section 16-6-60, to the east in Morgan County. This deal calls for a well by December 1, 1931, with three others at intervals of 90 days, and also for a bonus of $16,000 out of production on two of the quarters. Negotiations are reported pending for some additional acreage close in to these tracts. Frank E. Kistler organized the Producers & Refiners Corp., which was taken over several years ago by the Prairie Oil & Gas Co., and recently was made chairman of the board of the Reiter-Foster Oil Co.

The Midwest Refining Co. did not exercise its option on a block of 10,480 acres to the southeast of Fort Morgan, mostly in Townships 2 and 3n, Range 56w, which had been assembled by Clem S. Lee. The company began core drilling the block last June and the option is reported to have called for the starting of a well by October 1. It is understood that the company decided to surrender the option when an extension on the drilling clause until next spring could not be obtained. Several companies are negotiating for the block. The Midwest company moved its core drilling force to a block of 12,000 acres near Towner, in Kiowa County, where coring to work out the structure is reported in progress.

A new airport for the benefit of the oil men has been laid out on the Johnson-Juhl tract in Section 14-6n-61, Greasewood Field. Weld County commissioners aided with tractors and grading equipment; the Midwest Refining and Texas Production companies did the surveying; the owners of the property donated the use of the ground; the Foster Lumber Co., Manning & Terry, Inc., and the Halliburton Oil Well Cementing Co. aided in equipping the field.

The next completion in the Greasewood Field is expected to be the Continental Oil Co.'s No. 1 Briggs, C SE SW, Section 13-6n-61, an offset on the north to the Reiter-Foster Oil Co.'s No. 1 Ida Johnson. The Briggs well cemented 7-inch at 6,585 feet, using 361 sacks and 11 tons of ice and completing the job in 31 minutes. It is standardizing at this depth and date for drilling in has not been announced, but is expected to take place within the next day or two. The use of ice in cementing apparently has solved the problem arising from the high temperature of the deep wells. The ice is put into the water used in circulating and then when the hole is cooled, it is used in mixing the cement.

The Briggs well is reported to be running 7 feet higher than the Ida Johnson producer, one location to the south, and the Ida Johnson was 5 feet higher than the Platte Valley Petroleum Co.'s No. 1 Patterson, to the south of the Ida Johnson. These measurements were based on the top of the Niobrara, which is the best marker found. The Reiter-Foster's No. 1 Johnson-Juhl, based on the Hygiene, is running 12 feet higher than the Briggs well. These measurements tend to confirm the opinion that the structure rises to the northwest of the discovery well.

The Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, half a mile to the west of the Continental's No. 1 Briggs, cemented 9⅝-inch at 5,575 feet with 900 sacks, and using 14 tons of ice. This well was put down to this depth in 14 days' actual drilling time. It was down frequently, however, on account of the water shortage.

Continental Oil Co.'s No. 1 Gadbois, C SE SW, Section 24-6n-61, cemented 9⅝-inch at 5,495 feet, using 900 sacks of cement and 18 tons of ice. The cement was mixed in 13 minutes and the plug was forced down in 21 minutes.

Aztec Corp.'s No. 1 State, C NE NE, Section 16-6n-61, spudded on September 21, to 100 feet and shut down after cementing the conductor pipe. The Sultan Drilling Co. has the contract.

Greeley Oil Co.'s No. 1 Gadbois, C NW NW, Section 25-6n-61, is shut down at 216 feet after cementing the 15½-inch.

Reiter-Foster Oil Co.'s No. 1 William Wilson, C NE SE, Section 24-6n-61, has cellar dug.

Ohio Oil Co.'s No. 1 Gadbois, C SW SE, Section 24-6n-61, and No. 2 Gadbois, C NE NW, Section 25-6n-61, both remain locations.

Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, the discovery well which came in last October, was deepened 31 feet below the top of the pay to a total depth of 6,691 feet. Its production was improved somewhat, jumping from 195 bbls. on September 16, and 220 bbls. the next day, the day the deepening was finished, to 384 bbls. in 24 hours the following day. It then dropped back and is averaging 220 bbls. daily. The oil from this well is being trucked to Orchard and stored in tanks for the Mountain States Refining Co., which is building a skimming plant at that point. Several officers of the Platte Valley company are officials of the refining company.

Reiter-Foster Oil Co.'s No. 1 Ida Johnson, C NE NW, Section 24-6n-61, north of the discovery, is running between 393 and 415 bbls. daily at a total depth of 6,652 feet, with the tubing 20 feet off bottom. It is only 10 feet in the sand. The oil is being sold mostly in the field and no big storage has yet been erected by any of the companies. Continental Oil Co. is completing the acquisition of right of way for its pipe line to Orchard, but construction is not expected to begin until the Briggs and Gadbois wells are completed.

To the southwest of the above operations, in southern Weld County, in the Brighton-Lupton district, the Retter Oil Co.'s No. 1 Smith, C E half, Section 14-1n-66, is attracting considerable attention and will be closely watched due to the leasing activity in that district. George E. (Dad) Retter started the well in 1924, and in the face of many viscissitudes, has held on to the operation. Drilling was resumed recently at a total depth of 1,170 feet after being idle for some some time. The 12½-inch was pulled and the hole re-drilled. This string has been rerun to 1,106 feet and is being carried close behind the tools which are drilling at 1,187 feet. The making of new hole started at 882 feet. An unidentified sand, probably in the Pierre, was encountered at 1,087-1,100 feet. Shows of oil and gas were encountered at 887 feet and these have continued to increase with depth, but the pressure can not be determined on account of the water standing within 200 feet of the top, which will be shut off as soon as a good casing seat is found.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, is bottomed at 5,835 feet and sidetracking tools. New hole is 20 feet below the top of the bit.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, on the Fort Morgan anticline, 35 miles southeast of the Greasewood operation, is believed to be within striking distance of its first objective, the Dakota, and developments within the next week or two will be closely watched. It is being forced to drill in short shifts due to the inadequate water supply. At last reports it was coring at 5,576 feet. The Timpas lime, the best marker in northeastern Colorado, is reported to have been topped in this well at 5,178 feet. Allowing 420 feet for the interval between the Timpas and the Dakota, this will put the top of the first objective at about 5,598 feet. This indicates that the drilling will be more than 1,000 feet shallower than at Greasewood. Structurally, however, the Indian Territory well appears to be about 524 feet lower than the Greasewood wells, the Dakota being logged at this level as against 599 feet for the No. 1 Ida Johnson at Greasewood. The Indian Territory well spudded in March, 1930, with cable tools, but had unusually bad luck with cavy ground and finally switched over to rotary at 4,090 feet. Since then it has made much better progress, but has been handicapped by shortage of water. The acreage was assembled by Dr. F. M. Van Tuyl, of the Colorado School of Mines. The magnetometer and torsion balance work was done by Dr. C. A. Heiland, of that school, and checked by the geophysical work of the Indian Territory company. The Osage Development Co. and the Reiter-Foster Oil Co. have interests in the block.

The Colorado Associated Oil Co.'s No. 1 Pumphrey, C SE SE, Section 14-4n-58, North Fort Morgan Dome, is drilling below 4,000 feet. Coring started at 2,897 feet and continued through a formation in the Pierre that correlates with the Hygiene. The formation consisted of about 85 per cent sand and the remainder was shale. Based on the Hygiene, the structure is running around 100 feet higher than was expected. This will put the Dakota at somewhere between 6,300 and 6,400 feet.

(Continued on Page 75)

California May Go Under 500,000 Bbls.

Santa Fe Springs and Playa Del Rey Operators Still Blocking Curtailment. Refined Market Weakness Important Factor

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Sept. 26.—Crude oil production in California registered a decline during the past week but average daily production for the period was above the 500,000-bbl. mark. The refined oil market continued weak and the area affected by cut rate prices has been extended as far north as Santa Barbara. Refined oil prices have shown daily fluctuations and Southern California markets are exceedingly spotty. All major marketers with the exception of the Richfield Oil Co., which recently introduced a third Blue Flash gasoline, are sitting tight but are expected to take definite cognizance of the situation in the immediate future. In the meantime determined efforts are under way to stabilize quotations in the hope of averting a repetition of the disastrous gasoline price war which visited the Pacific Coast during the early part of the current year.

The decline in daily production during the past week is especially encouraging as it indicates the possibility that state production may drop below the 500,000-bbl. mark within the next week or ten days. Kettleman Hills is the only field undergoing consistent development and is consequently the only area which could cause any violent fluctuation in state production. Operators in this field, however, are definitely committed to keep daily production to a maximum of 60,000 bbls. for the rest of the year with the result that Kettleman Hills will not become a disturbing factor. Spasmodic completions in other fields will stimulate state production from time to time but the decline in development work will sooner or later be reflected in state production.

Drilling Operations

Drilling operations have shown a slight increase in the Potrero and Long Beach Fields during the past few weeks, but this work is of a minor character as development work throughout the State has shown a consistent decline since the first of the year. During August there were only 149 imcompleted drilling projects under way, compared with 180 during the preceding month, July. During September there has been a slight increase but this work may show a falling off between now and the first of October. Of the 149 wells drilling during August, 82 were located in wildcat territory, leaving only 67 drilling wells within the confines of proven fields. Long Beach tops the development list with 13 drilling wells under way, followed by Kettleman Hills with 9, Ventura Avenue with 8, Lost Hills and Belridge with 6 and Ventura-Newhall with 4. Dominguez and Playa Del Rey have 3 each, while Rincon, Newport and Seal Beach are credited with 2 drilling wells each. The Buttonwillow gas field and the Goleta gas field each showed 2 drilling wells but these projects are not expected to affect the crude oil situation as the wells are in search of commercial gas production. It is evident from these figures that development work now under way will not result in increased production, especially since operators at Kettleman Hills, Ventura Avenue and Dominguez are heartily in accord with curtailment work and will consequently keep production down to the allotted maximum irrespective of the number of new wells completed from time to time. The 13 drilling wells under way at Long Beach may stimulate production from time to time but this limited amount of drilling is negligible in comparison with the intensive town lot drilling campaigns which have characterized development work during the past several years.

Declining Production

The most encouraging thing in connection with Pacific Coast conditions at the present time is the substantial reduction effected in drilling operations and the declining production in fields which have heretofore prevented stabilization. During August a number of fields actually produced below their maximum allotment. These included Coalinga, Elk Hills, Fruitvale, McKittrick, Midway-Sunset, Round Mountain, Wheeler Ridge, Summerland, Ventura Avenue, Ventura-Newhall Fullerton, Dominguez, Inglewood, Long Beach, Montebello and Rosecrans. Kern River, Santa Fe Springs, Kettleman Hills, Lost Hills-Belridge, Mount Poso, Elwood, Rincon, Santa Maria, Coyote, Lawndale, Los Angeles, Salt Lake, Huntington Beach, Playa Del Rey, Potrero, Richfield, Seal Beach, Torrance and Whittier exceeded their maximum allowable daily production.

It is interesting to note, while commenting on production, that the Long Beach Field actually failed to reach even its allowable daily production. This indicates a pronounced settling of production especially in the wells of operators who have failed to curtail production. It is needless to say, of course, that there is a considerable amount of production curtailed in the Long Beach Field as there are 236 wells entirely shut in. Practically all of these projects belong to the major companies. The Shell has 72 wells entirely shut in at Long Beach, The Texas Company 43, General Petroleum 16, with the remaining wells divided among other major producers. In addition to the production represented by wells entirely shut in, there is a considerable amount of production curtailed in wells actually on production.

Obstructive Fields

Santa Fe Springs and Playa Del Rey are the two outstanding fields in the State where there has been any concerted opposition to curtailment. Curtailment has been a negligible factor in Playa Del Rey and it is the opinion among well-informed oil men that the failure to curtail has cost operators at Playa Del Rey several million dollars. This is particularly true because the only hope of making a profit at Playa Del Rey depended upon receiving a maximum price for crude oil. The limited amount of recoverable oil in the Playa Del Rey Field, due to an unusually thin oil zone, precluded profitable operations with oil under $2 per barrel. Even then the margin between profit and loss was rather slim. The failure to curtail and resulting inability to command a favorable price for crude oil has thrown many operators in this field into receivership. Even now with the cream of production gone and production settling from month to month, many operators and the receivers of properties in equity still refuse to admit the advisability of curtailing production.

Santa Fe Springs operators produced 7,294 bbls. per day in excess of their allowable daily production during August. Production of this field has never been within striking distance of the maximum allotment due to the consistent objection of several producers to state-wide curtailment. If the irreconciliables at Santa Fe Springs, Playa Del Rey and a few insurgent operators at Long Beach could be brought into line and observe curtailment, the gasoline market would become stabilized within a short time and crude oil prices would reflect a corresponding increase. It hardly seems possible that such a relatively small amount of production could thwart the concerted attempt to effect stabilization, but such is the case.

Kettleman Hills

There has been a very decided slackening in drilling operations in the Kettleman Hills Field with the result that future completions will be more or less infrequent. It is likely, however, that three potential producers will be completed in the north dome within the next 30 days and several more subsequently. The North American Consolidated picked up the top of the Temblor in No. 1 Blauvelt at 8,505 feet and this well, unless located too far out on the north flank, should be completed during the next 60 days. The Kettleman North Dome Association, Petroleum Securities, Standard and Superior Oil Co. should also chalk up additional completions during the next few months. Work in this field is not of a competitive nature, however, and production should consequently be more easily stabilized. The Standard is grading location for a new well on the south plunge and far out on the east flank of the north dome and this well, No. 25-23-Q, should begin making hole in the near future.

Lost Hills-Belridge

There was no great change in the status of the Lost Hills-Belridge Fields during the past week due primarily to decreased drilling. At Lost Hills the Lincoln Petroleum is reaming No. 1 Theta preparatory to landing a string of 4½-inch somewhere around 5,225 feet. This deep Temblor test has logged approximately 100 feet of good-looking oil sand just above present bottom, 5,230 feet, and the projected production test will be watched with interest. The General Petroleum's Lost Hills test, No. 1,301 in Section 13-26-20, is still held up with mechanical trouble at 4,399 feet. The Belridge Oil Co.'s deep test in the North Belridge Field of Kern County has reached 6,150 feet and although the formation shows a favorable reaction to acetone, the ultimate outcome is still in doubt. In the South Belridge Field, the General Petroleum's No. 1 Berry is still in brown shale at 6,575 feet, but it is believed the top of the Temblor should be encountered in the very near future.

Potrero

The recent completion of the Beloil Corp.'s No. 1 Coffin has stimulated drilling operations in the Potrero Field with the result that several wells are being cleaned out preparatory to being carried down to this new deep horizon. This new work is expected to result in the recompletion of several former upper zone producers in the lower zone, but should not have any great effect on state production as the several zones already developed in this field have failed to hold up with any degree of regularity. New wells show quite a flush production but the limited thickness of oil-bearing formation has failed to result in sustained substantial production.

Drilling operations at Playa Del Rey are practically negligible at present, and this field is slowly but consistently passing out of the production picture. The Union Oil Co. is running four strings of tools in the Dominguez Field and will chalk up one or two completions during the next 30 days. This new work, made necessary because of lease requirements, has made it obligatory for the Shell to drill No. 40 Reyes, but is not expected to result in any further work at least for the present.

In the Coyote Field of Los Angeles Basin the Standard has started rig construction for Nos. 108 and 109 on the Murphy Coyote lease and actual spud is scheduled to be made within the next three weeks. This work, likewise made necessary because of lease requirements and because of a desire of the company to keep drilling crews on the payroll, will not have any adverse effect on state production.

Deep zone exploration in the Huntington Beach Field of Los Angeles Basin has temporarily passed out of the picture due to the unsuccessful production test of W. E. McCaslin's No. 17 Transport and the inability of the Superior to develop commercial production in two of the three deep tests drilled in that area up to the present. The potentiality of the projected deep zone in the Huntington Beach town lot area is still undetermined.

Long Beach

Although drilling operations have been stimulated somewhat by the completion of several commercial producers in the Los Cerritos section of the Long Beach Field, this additional drilling is not expected to prove a serious deterrent to curtailment work. We may anticipate the completion of several fairly large pro-

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	196,829	28,118	1,379,888	2,592,518
Gasoline	356,870	50,981	78,306	11,187	10,040,948	14,365,533
Kerosene	.....	.....	.....	.....	187,934	.....
Coastwise—						
Crude oil	540,095	77,156	348,002	49,715	16,619,585	11,327,319
Fuel oil	232,159	33,166	162,430	23,204	9,203,224	12,658,617
Diesel and gas oil	.....	.....	24,822	3,546	1,130,716	1,218,099
Gasoline	289,489	41,356	244,102	34,872	10,358,594	9,411,137
Kerosene	.....	.....	6,250	893	226,307	149,256
Naphtha distillate	.....	.....	.....	.....	4,953	.....
Exports—						
Crude oil	175,229	25,033	159,320	12,760	5,622,236	5,091,597
Fuel oil	381,017	54,431	124,661	17,809	10,146,557	13,349,663
Diesel and gas oil	99,444	14,206	42,583	6,083	2,727,749	3,291,961
Gasoline	220,777	31,540	13,610	1,944	6,485,549	11,799,281
Kerosene	8,410	1,201	98,325	14,041	1,231,449	2,913,422
Lubricants	.....	.....	.....	.....	36,353	14,680

TANKER SHIPMENTS, SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	279,088
Gasoline	66,780	9,540	73,950	10,564	732,169	1,008,757
Lubricants	7,930	1,133	.....	.....	35,236	24,774
Coastwise—						
Fuel oil	.....	.....	30,120	4,303	2,678,138	2,488,254
Diesel and gas oil	.....	.....	6,810	973	346,660	306,256
Gasoline	.....	.....	139,626	19,947	3,240,767	2,999,574
Kerosene	.....	.....	7,882	1,140	342,370	176,747
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	80,680	11,526	60,665	8,666	249,081	3,075
Fuel oil	.....	.....	76,559	10,080	1,202,690	662,135
Diesel and gas oil	.....	.....	.....	.....	386,942	451,779
Gasoline	.....	.....	198,269	28,324	3,161,311	3,995,392
Kerosene	.....	.....	66,459	9,500	629,067	533,568
Lubricants	.....	.....	5,593	799	25,693	38,579

THEY TALKED DIFF

but THEY SMILED

"That's good chain", the driller said.

"Yes", the engineer answered, "It's a well-balanced design."

"The pins wear."

"They are the result of many thousands of experiments in the selection of alloys and heat treatment."

"They don't snap off?"

"No, the scientific heat treatment builds up strength in the metal beneath the surface."

"The chain doesn't stretch?"

"No, the alloy steel side bars are also of a special steel, heat-treated so that the chain maintains uniform pitch."

"It doesn't rattle apart?"

"No, the close tolerances make it virtually impossible for wear to start."

"The side bars don't back off the bushings?"

"No, the accurate force-fit of the parts, assembled by hydraulic pressure into the unit link holds the chain intact."

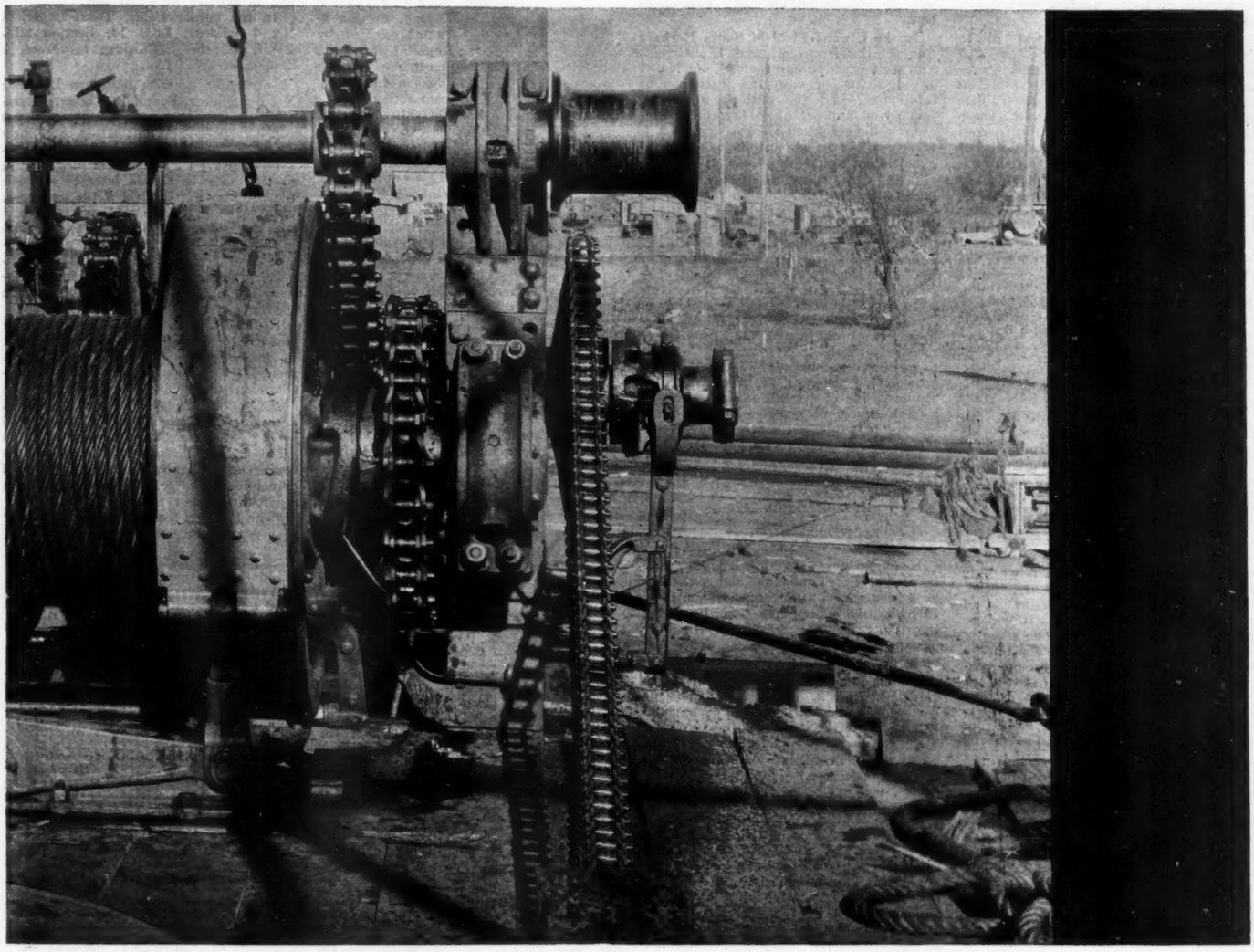
"It doesn't pound to pieces?"

"No, the weight is scientifically determined in relation to the

REX DEEPWELL

Reg. U. S. Pat. Off.

ERENT LANGUAGES



THE SAME SMILE

operating speed."

"It runs smooth?"

"Pitch and working tolerances between the ground pins, the ground bushings and the seamless rollers are closer than A.S.M.E. standards."

"One of the chains is just like the next."

"It is made by precision methods, by modern machinery using highly specialized dies and automatic machinery."

"It fits the sprockets?"

"Every strand is matched to A. P. I. standards and carefully inspected so that those standards are maintained."

"It's engineered?"

"Yes, it's engineered."

"It's the greatest chain that ever hit the oil fields."

"Yes, it is the greatest chain that ever hit the oil fields."

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Stocks in all Active Oil Fields

CHABELCO

ducers during the next 60 or 90 days, but it appears probable the normal decline in field production will more than offset the new production added as a result of additional completions. There were no new wells chalked up in the Long Beach Field during the current week, but there are one or two potential producers nearing completion which may be tanking oil before another week draws to a close.

The proposed joint deep test to be drilled in the Seal Beach Field of Los Angeles Basin by the Associated, Continental and Standard Oil Co. is still a matter of conjecture due to the failure of one lessee to ratify the proposal. These three companies have tentatively agreed to unify development if practicable, but will not be able to do so unless the landowners agree to such a proposal. The plan, contemplating unit development at Seal Beach, does not include present productive horizons but is limited to additional productive zones subsequently proven up. The Associated, Continental and Standard have tentatively agreed to jointly drill a new deep test to determine the potentiality of any new zones below present productive horizons but this deep exploration work will be retarded until some future date unless the Bixby interests are subsequently induced to ratify the proposal.

Ventura Avenue

Although drilling operations in the Ventura Avenue Field have been reduced to an absolute minimum we may anticipate the completion of several potential producers in that field during the next 60 days. On the Lloyd property, the Associated should complete Nos. 81, 83, 109, 111 and 129 within 90 days, although the completion of these new wells may be retarded to minimize the effect on current production. The Shell is working on only one hole in this field at present, but this project, No. 68 Taylor, is of more than passing interest as it will be carried down to the new 57 zone recently discovered by the Associated. The Pacific Western Oil Co. failed to develop commercial production in No. 7 Orton at 7,174 feet and may possibly carry this hole down for a deep conclusive test.

The General Petroleum is rotating ahead in No. 3 More, a deep test in the Goleta gas field at 6,900 feet, but the possibility of developing crude oil production does not appear any too promising. This well can be plugged back to the dry gas zone and finished as a commercial gas producer in the event that deep zone exploration is unsuccessful. The Ohio's No. 1 Oakley is running structurally lower than either of the three wells drilled on the General Petroleum's More lease, but may still tap the commercial gas zone known to exist in this field.

The Chanslor-Canfield Midway Oil Co., failing to develop commercial production in No. 2-A Hobson, a deep wildcat between the Rincon and Ventura Avenue Fields, has plugged this hole back from 10,030 feet to 7,825 feet. After several weeks of effort to stimulate a natural flow above the plug at 7,825 feet, the company put this well on a compressor and has developed an artificial flow of 160 bbls. per day cutting 65 per cent. The Continental Oil Co. has temporarily concluded drilling operations on No. 1 Grubb, an offset at 6,640 feet, preparatory to concluding an early production test.

In the Elwood Field of Santa Barbara County, the Barnsdall and Rio Grande are making a pumping test of No. 1 Bishop-Evans, a deep test bottomed at 6,730 feet, and the outlook for Sespe production appears quite favorable. This deep well shows considerable gas, but it will probably be several days before its potentiality will be definitely determined.

Despite the apparent failure of the Standard Oil Co. to secure commercial production in a recent wildcat drilled in the upper reaches of Newport Bay, the Superior Oil Co. has spudded in its No. 1 Irvine, a little over a mile south of the Standard's recent abandonment. The Superior entered the Newport area a few months ago by leasing quite a block of acreage, although the probable productive acreage on this minor structure is relatively limited. Wildcat exploration has been very consistent in the Newport area during the past 15 years, but with the exception of a small amount of heavy asphalt crude, no commercial production has yet been secured south of the Huntington Beach Field. The Superior's test will be watched with interest, although operators familiar with this area regard it as a rank wildcat.

OFFICES TO SHREVEPORT

Headquarters for the Federal Petroleum Co. for Louisiana and Arkansas have been moved to Shreveport from Lake Charles and offices has been leased in the Ward Building where the company has maintained a geological office for some time.

The headquarters here will be in charge of E. J. Raisch, vice president of the company and the scouting department will be in charge of N. A. Simms. D. N. Jolley, geologist, who has been stationed here, will continue to maintain his office in Shreveport.

DECREASE IN CRUDE STOCKS

Pipe line and tank farm gross domestic crude oil stocks east of the Rocky Mountains decreased 7,918,000 bbls. in the month of August, according to returns compiled by the American Petroleum Institute from reports made by it by representative companies. The net change shown by the reporting companies accounts for the increases and decreases in general crude oil stocks, including crude oil in transit, but not producers' stocks at the wells.

NEW SOUTH TURNER VALLEY WELL FLOWS 18,000,000 FEET OF WET GAS

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Sept. 26. — In the South Turner Valley, Southern Lowery's No. 3, LSD 4, Section 9-19-2w5, drilled by Imperial Oil, Ltd., is reported testing naphtha recovery from a flow of 18,000,000 feet of wet gas encountered more than 400 feet in the lime at 5,622 feet. The test is about 400 feet north of Mercury's No. 1 big producer in Section 4-19-2w5. It was cemented in top of the lime at 5,175 feet. This is the third test drilled by Imperial Oil, Ltd., for Southern Lowery in Section 9-19-2w5. Southern Lowery's No. 1, east of the new producer in LSD 3, was not a commercial well. No. 2, in LSD 13, toward the north end of the section, is a good well, making 4,645 bbls. in August in spite of restrictions. No. 3 should show a somewhat better production; which will make Southern Lowery one of the larger producing companies in the field. The only other well in Section 9-19-2w5, is Commonwealth Petroleums' No. 1, LSD 7, which made 1,055 bbls. last month under restrictions.

Among the other Imperial tests, Sterling Pacific Oil Co.'s No. 2, LSD 10, Section 33-18-2w5, in South Turner Valley, is drilling at 4,295 feet.

In the border fields, Texas-Imperial's No. 1 wildcat, LSD 14, Section 22-8-22w4, on the Lethbridge structure, is drilling at 3,712 feet.

In connection with Southern Lowery's No. 3 producer, Frank P. Fisher, government expert, announces that the new well will share in the unitization agreement now being negotiated, the agreement containing provisions for wells now drilling or that may be drilled later to share in the revenues of the field if the agreement goes through. Southern Lowery's No. 3 finished somewhat a surprise, as early indications in the lime were not favorable and, contrary to the usual experience, practically no shows of importance were encountered in the first 400 feet in the lime.

No definite decision has yet been reached in regard to the scheme of unit operation of the Turner Valley Field, recommended some weeks ago by the subcommittee of the advisory committee on conservation, headed by Frank P. Fisher. A series of conferences are being held by the government with various interests affected. The advisory committee on gas conservation has approved the general principle of the scheme in the following report to the government:

"The advisory committee appointed by

(Continued on Page 72)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	6,760	sd. sh. drilling
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	13- 2-15	6,238	suspended
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,151	cleaning out
Baxter Pet., No. 1 Hermosa, Los Angeles Co.	5- 4-14	mtl.	building rig
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Smith, J. O., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,013	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	rig	suspended
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,300	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	20- 2- 9	2,110	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	rig	suspended
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,842	cleaning out
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	4,660	gr. sd. drilling
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-13	2,015	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	810	br. sh. drilling
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,240	hd. sd. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	suspended
Simi Oil Co., No. 1 Calabasas, Los Angeles Co.	18- 1-17	1,011	sd. sh. drilling
W. Coast Waste Oil Co., No. 1 Van Nuys, Los Angeles Co.	14- 1-16	rig	suspended
Superior Oil Co., No. 1 Newport, Orange Co.	27- 6-10	111	sd. drilling
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	5,290	hd. sd. drilling
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Alberta Oil Co., No. 1 Elsinor, Riverside Co.	35- 3- 3	3,435	suspended
Duncan, N. I., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	3,392	redrilling
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	610	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	5,124	hd. sd. drilling
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 3	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18- 1	1,570	fishing
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 6- 8	5,250	suspended
Oklahoma Oil Corp., No. 1 Palma, San Diego Co.	25-11- 5	510	redrilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S T R	Depth	Status—
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-35	7,415	br. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-36	3,450	suspended
Ohio Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	3,811	hd. sd. drilling
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	2,000 MCF gas
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	4,000 MCF gas
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	6,100	sd. sh. drilling
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,013	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	33- 4-28	2,010	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,999	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,134	suspended
Strickland & Tippet, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,504	hd. sd. drilling
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	3,345	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C. C. M. O., No. 2-A Rincon, Ventura Co.	23- 3-24	6,640	cemented
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	6,640	cemented
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	802	sd. sh. drilling
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	2,591	suspended
San Pedro Oil Co., No. 1 Sespe, Ventura Co.	13- 4-21	3,410	cleaning out
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	5,002	suspended
Mex Cal Oil Co., No. 1 Conejo, Ventura Co.	12- 1-20	240	suspended
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	3,060	br. sh. drilling
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 6 Buttonwillow, Kern Co.	8-28-23	2,672	will deepen
Calif. Oil Producers, No. 2 McKittrick, Kern Co.	30-30-22	6,300	br. sh. drilling
Furman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	rig	rigging up
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	30-31-24	5,567	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	6,575	br. sh. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,322	suspended
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	3,803	hd. sd. drilling
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	2,000	to set pipe
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	6,150	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,600	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	21-26-18	3,206	br. sh. drilling
Signal Oil Co., No. 1 Blackwell Corner, Kern Co.	15-26-19	....	skid rig
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	3,830	cleaning out
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	511	redrilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	1,030	gr. sd. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Panorama Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-31-31	4,019	suspended
Kent & McDonald, No. 1 Carrizo, San Luis Obispo Co.	3-32-22	2,031	suspended
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	hd. sd. drilling
Paso Robles Synd., No. 1 Paso Robles, San Luis Obispo Co.	34-27-11	4,040	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,615	suspended
Cent. Coast Inv. Co., No. 1 Atascadero, San Luis Obispo Co.	1-28-12	rig	rigged up
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	1,475	sd. sh. drilling
Pacific Inland, well No. 1, Monterey Co.	19-23-15	1,345	suspended
Brown, W. F., well No. 1, Monterey Co.	18-23-14	800	suspended
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well, idle
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well, idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	rig	suspended
Kettleman Lakeview, No. 1-A Dudley Ridge, Kings Co.	30-23-20	1,095	recemented
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	4,215	testing W.S.O.
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	cleaning out
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,460	hd. sd. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,120	redrilling
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,300	hd. sd. drilling
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,498	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	958	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,197	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,520	redrilling

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Wood County, Ohio, Getting New Tests

Ten Completions in Central Ohio Field, Two Oil Producers. Progress of Developments in Michigan and Kentucky

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Sept. 28.—There is a little excitement brewing in the territory to the west and northwest of the old Lima Field proper where a large number of tests are to be made by the Lake Shore & Southwestern Metal Co., of Wilmington, Del. No. 1 well of this company is on the Henry Keckley farm, Section 7, Grand Rapids Township, Wood County, and on the bank of the Maumee River at the far edge of the city of Grand Rapids, where a gas well was brought in around 1,600 feet, which shows for better than 1,000,000 feet. The well of this company on the McLean farm, about a mile out of Grand Rapids and in the same township, is an unusually good gas producer which is encouraging for the continuation of further test work on a large acreage in Wood County as well as in Henry County where the company contemplates the drilling of a number of wells in hopes of finding enough volume to pipe the gas into a number of fairly good sized towns and villages in that part of Ohio. Same company's No. 1 Matt Thome farm, a mile east of New Bavaria, between Maumee and Bavaria, was reported with 541,000 feet. Work will soon start on tests in the vicinity of Holgate, Napoleon and other smaller hamlets like McClure, all of which are anxious for natural gas.

In Wyandot County, Tymochtee Township, Cook, McPherson and Miller have started a well on the Billhart-Bowman farm, Section 17, where the farm has some average gas producers, the gas coming from the Trenton lime formation at depths around 1,500 feet.

CENTRAL OHIO

Ten completions were reported from the Central Ohio Field, two being producers with an initial production of 56 bbls., five dry holes and three gas wells, also six new locations for rigs were made and 10 wells started drilling, a total of 16 for the week.

In Ashland County, the Ohio Fuel Gas Co.'s No. 1-5521 H. W. Martin farm, Section 3, Montgomery Township, had a light showing of oil in the Newberg sand, but went to the depth where the Clinton formation should be found, but no Clinton was there and it goes as a dry hole. Commonwealth Gas Corp. is drilling on the D. A. Phillips farm, Section 15, Milton Township, same county. Stewart and others are putting down a test on the David Horn farm, Section 4, Lake Township, same county, and found the top of the Berea sand at 535 feet and still drilling.

In Medina County, Chatham Township, Edson Sons Co.'s No. 19 George W. Packard farm, Lot 4, produced an initial of 50 bbls. from 327-65 feet. Barnhart and others' test on the J. A. Holshoe farm, Section 17, Homer Township, had a slight showing of both oil and gas but not in commercial quantities, in the Newberg sand from 2,505-2,511-2,716 feet.

In Ashtabula County, Jefferson Township, Ross Riggs and others found a dry hole on the E. D. Frayer farm, in the Austinburg sand, water being found from 2,167-68 feet.

In Licking County, Emerald Petroleum Co. brought in a dry hole on the Darwin Fidler farm, Lot 26, Bennington Township, from 2,102-18 feet.

Athens County

In Athens County, Waterloo Township, the Standard Natural Gas Co. has a fair gas well in No. 5 Almeda J. Young farm, Section 12, at a depth of 1,045 feet. Wittmer Oil & Gas Co. is drilling on the Valley Mining Co.'s property, in fractional Section 6, York Township, same county.

In Tuscarawas County, Washington Township, the Hopewell Oil & Gas Co. has a rig in for a second test on the Lonidus H. Meek farm, Lot 37.

In Stark County, Lawrence Township, Wittmer Oil & Gas Co.'s No. 1 Mary J. Shuman farm, Section 15, has a nice volume of gas and produced 6 bbls. of oil initially from the Clinton lime from 3,897-3,931 feet. Same company has a rig on the C. R. Dahler farm, Section 20, same township. In Jackson Township, the Ohio Fuel Gas Co. has a nice gas well in No. 1-5522 Charles H. Young farm, Section 15. Brendall and others also found a nice gas well on the Jacob Cockley farm, Section 10, same township, in the same formation from 4.390-4,403 feet, being the lower Clinton lime. East Ohio Gas Co. has a rig on the Fred and Clare Saylor farm, Section 13, same township. Same company is drilling No. 1 Eva M. Sisler farm, Section 16, same township.

In Fairfield County, the City Natural Gas Works is drilling a second test on the Robert Fleming farm, Section 35, Berne Township.

In Guernsey County, Adams Township, George McLaughlin has a rig on the James Mehaffey farm, Section 11.

In Belmont County, Somerset Township, Washmuth & Callahan Co. is drilling on the S. P. Butler farm, Sections 32-33. Peters, Purdy and others are drilling No. 3 W. C. Wheatley, Sections 27-28. Central Gas Co.'s No. 1 H. B. and R. E. Mann farm, Section 7, same township, was given up as a dry hole at 250 feet. Bradfield & Hardwick has a rig on the A. and J. Burkhart, Section 32, and William Curn and others have a rig on the J. A. Johnson, Section 15, same township.

In the Chatham Field, Chatham Township, Medina County, Curtis & Eakens' No. 6 Thomas Brown, Jr., farm, Lot 22, Section 16, is good for 2 bbls. at 385 feet.

In Athens County, John Walters and others' No. 1 M. and E. Stratton farm, SE, Section 5, York Township, showed an initial of 30 bbls. from the Clinton lime formation at 3,400 feet.

In Vinton County, Donahue and others' test on the William Gibbons farm, Section 36, Brown Township, had a showing of oil in the Berea sand at a depth of 835 feet, but not a commercial producer and abandoned as a dry hole. This test is near the town of Plymouth.

In Meigs County, Rutland Township, Chase and others are starting a test on the G. W. Ward farm, Section 4. Utsinger & Barton are starting a test on the William Plummer farm, Section 8, same township, and Joe Rubin and others are drilling on the Charles H. Jones and others farm, Section 5, same township. E. E. Martin and others are shut down

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Spurt in Completions in Eastern Field

Sixteen Gas Wells, Some Fair, Two Oil Producers and Six Dry Holes Reported. Muskingum County Has Fair Amount of Work

By Staff Correspondent

PITTSBURGH, Pa., Sept. 28.—Completions spurted upwards during the week with the greatest number reported for several months. A total of 16 gas wells, some fair, two oil producers with an initial production of but 21 bbls., and 6 dry holes were drilled in during the past week. West Virginia claimed the largest number.

Pennsylvania crude continues in good demand but some anxiety is being felt over the recent increase in runs in the western fields with the reported lower prices at which some crude is offered. With but very little new production having been brought in during the past six months, and a close adherence to the curtailment schedule, the total runs in the Eastern fields have been well absorbed.

SOUTHEAST OHIO

The largest well reported from Southeast Ohio during the past week, was the test of the Atha Oil Co. on the John Wilkins farm, in the NE, Section 17, Madison Township, Perry County. It was drilled in the top of the Clinton sand at a depth of 3,105 feet where a flow of gas was struck. Drilling was discontinued and the well gauged 800,000 feet of gas a day. The well will not be drilled deeper at present nor will it be shot in line with the conservation practice.

Continuing with No. 25 on the Morris A. and Eva Franks farm, Lot 20, Section 16, Chatham Township, Medina County, E. R. Edson & Son Co. completed another fair producer in the shallow sand at a depth of 501 feet. After shot, the well produced 20 bbls. the first day. These wells so far appear to have good staying power. In Section 4, Lake Township, Ashland County, A. G. Talbot and others drilled No. 4 on the David Horn lease of 80 acres. It was a dry hole at a depth of 560 feet in the Berea sand but had a light showing of gas.

Monroe County

In Monroe County, Thomas Brothers and others completed a test on the J. N. Beardmore farm, Section 23, Washington Township, in the Keener sand at a depth of 1,300 feet. After shot, the well produced 1 bbl. the first day, and a flow of 200,000 feet of gas which came from the Lime sand at a depth of 1,224 feet. In Vinton County, Powers and Henry drilled a test on the Alice Miller farm, near Bollins Mills in Section 5, Knox Township. It was a dry hole in the Grit sand at a depth of 1,232 feet.

In Tuscarawas County, the Ohio Falls Drilling & Supply Co. met with a disappointment in a deep sand test on the Harvey Long farm, Lot 22, in Clay Township. It was drilled through the Niagara lime to a depth of 3,640 feet. The top of the lime was at 3,425 feet and after further drilling of 215 feet, no sand was struck and the hole was dry.

Washington County reported two completions. In Salem Township, George Chichester completed No. 3 on the H. Neuberger farm near Warner, Lot 46, in the Buell Run sand at a depth of only 300 feet. It produced about one-half barrel naturally the first day, and as yet the well has not been shot. Near Whipple Run, Lot 134, Fearing Township, John T. Cleary and others drilled a fourth well on the Jacob Morningstar farm in the Buell Run sand at a depth of 560 feet. The well was dry.

Drilling in Ohio

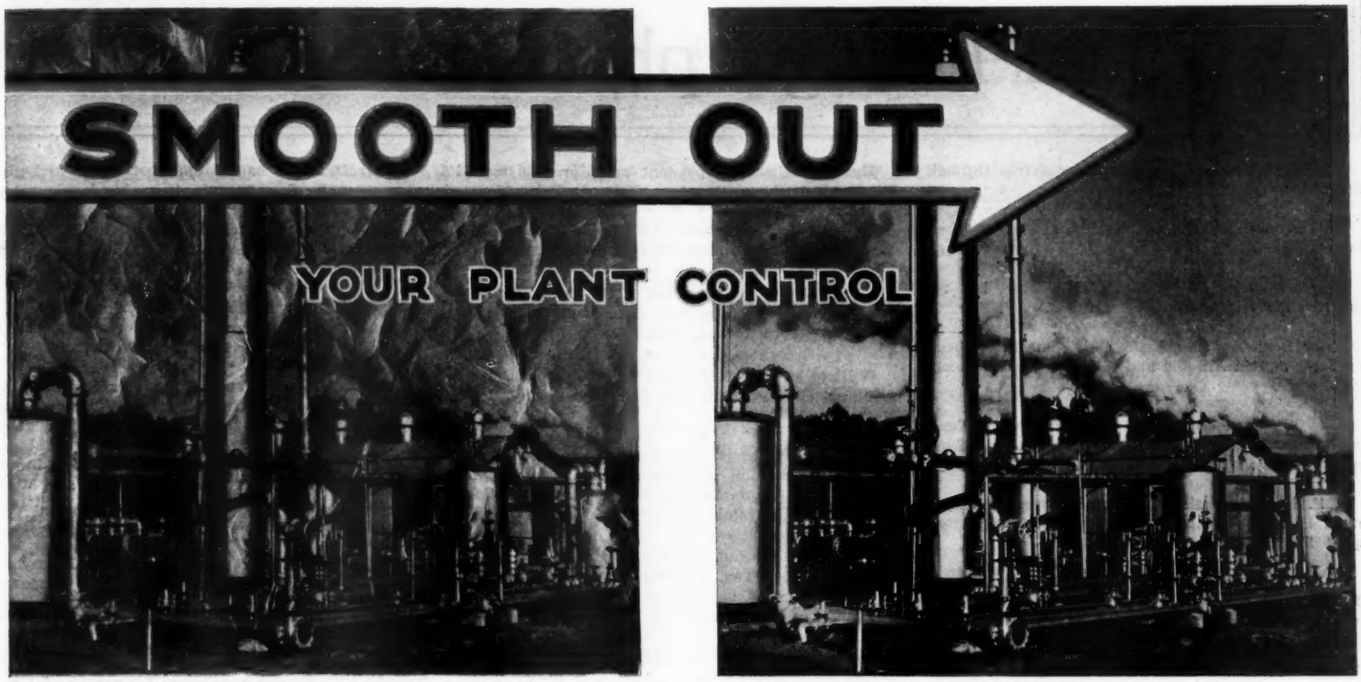
In Muskingum County, there is a fair amount of work progressing with at least one well soon due in the sand. In Falls Township, the Atha Oil Co. is down to 1,570 feet in a fourth well on the W. H. Atha farm, which has proved a valuable lease. The same company has a second test on the Stark Land Co. lease in Section 10, Washington Township, on the top of the sand at 4,000 feet and it is at present shut down for a test. In the same township, the Ohio Fuel Gas Co. is drilling at 1,490 feet on the H. A. Mangold farm, Section 11. In Falls Township, this company has its test on the John Seebaugh farm down to 1,065 feet. In Brush Creek Township, the Hopewell Fuel Gas Co. is down to within a few feet of the sand on the P. Morningstar farm in Section 8, and the hole is 4,000 feet deep. In Section 9, the Pure Oil Co. has reached 3,275 feet on the W. A. Swingle farm. In Section 3, the Ohio Fuel Gas Co. has rigged up on the Almeda Russell farm.

WEST VIRGINIA

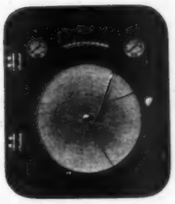
Drilling maintains a fairly steady progress in West Virginia but chiefly in gas areas. Again no new oil producers were reported from this State. The best gas well for the week was probably Park Bowser's fourth well on the W. H. Jackson farm, on the waters of Yellow Creek, Center district, Calhoun County. It was completed in the Injun sand and is rated good for 1,000,000 feet of gas a day. There were three other completions in this county only one of which was a producer. In Lee district, F. F. McIntosh completed a second test on the Ed Gunn farm at a depth of 2,160 feet and in the Injun sand. It is a fair gas well, natural. On the waters of Burson Run, Sheridan district, Roy Waggoner drilled a test on the J. H. Hayhurst farm through the Injun sand and found it dry. In Center district, Walter H. Bickel drilled to 1,870 feet and in the Injun sand on the I. A. Gainer farm. It was also dry and will be abandoned.

Boone County had four completed wells. In Scott district, the Owens Bottle Co. completed a fair gas well on the S. P. Cabell farm at a depth of 1,777 feet. It is rated at over 400,000 feet a day. In Washington district, the same company drilled in its test on the Letha Myers farm at 2,104 feet with a resultant fair gas well. In Peytonia district, the same company completed No. 9 on the Safe Deposit & Trust Co. lease at 2,339 feet and it will make a small gas well. In Sherman district, Godfrey L. Cabot completed his No. 47 on the Fed-

(Continued on Page 75)



with NEILAN Instruments



These are times when plants must be efficient. Accurate temperature and pressure control increases efficiency. Without precise control profits disappear.

Neilan Temperature and Pressure Instruments are supplying closer control in many plants. This is enabling the refiner to meet exact gasoline specifications. The resultant increase in quality and quantity of the product insures additional profits.

If you are interested in greater efficiency and profits, install the advanced Neilan Temperature Controller Instrument. Among its many unique features is the Thermo-Pressure Compensator, which is hailed by many engineers as the greatest advancement in temperature control. It mechanically provides a close interrelation between pressure and temperature.

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(stock carried) HOUSTON, 1400 Conti St. . . Maintenance Engineering Corp.

YOU CAN BE SURE OF NEILAN PRODUCTS

Personal Paragraphs About Oil Men

W. F. Nabors has lately been on a trip through Southwest Texas.

* * *

Ed Daly, of The Texas Company, at Pampa, Tex., is in Colorado.

* * *

Frank Stevens, of Wainwright, Alberta, left recently on a trip to the Texas fields.

* * *

Drew Beams of Okmulgee, Okla., has lately been a visitor at San Antonio and other Southwest Texas oil centers.

* * *

J. E. Walsh of the Larcro Gas & Petroleum Company of San Antonio, Tex., is on a trip to New York and the East.

* * *

S. P. Farish, president of the Navarro Oil Company, Houston, Tex., has returned from a vacation spent in California.

* * *

D. J. Wolff, geologist of the Phillips Petroleum Company for the Rocky Mountain area, was a Denver, Colo., visitor this week.

* * *

Mr. and Mrs. Grover Crosbie and daughter have arrived in Peru on their return trip from Petrolia, Ontario, where they spent the summer.

* * *

D. A. Burris and C. G. Porter, who left San Antonio, Tex., early in the year when the East Texas situation began to get interesting, are now back in San Antonio.

* * *

T. B. Greene, vice president and general manager of the Buckeye Pipe Line Company, with headquarters in Lima, Ohio, spent a day in Pittsburgh during the past week.

* * *

Sam F. Wallace, of the Parkersburg Rig & Reel Company, made an inspection of the development in eastern Colorado last week looking into the requirements and possibilities of that area.

* * *

Paul T. Seashore, general manager of the Louisiana Land & Exploration Company, has moved to New Orleans, following removal of Houston, Tex., offices of that company to the Louisiana city.

* * *

H. D. Peltier, formerly connected with Henry Vogt Machine Company in the capacity of advertising manager, has joined the Staley Advertising Agency, Fort Wayne, Indiana, effective September 21.

* * *

J. E. Rouse, Rocky Mountain division manager of the Standard Oil Company of Indiana at Casper, Wyo., with 10 employes, will leave next week for Chicago to attend the thirteenth annual industrial relations conference on October 5.

* * *

A. G. Dana, vice president and general manager; R. D. Wallace, head of the land department; C. J. McCoy, general superintendent; O. E. Garretson, C. D. Wells, R. K. Hart and C. M. Pickrell, of the Prairie Oil & Gas Company, have been inspecting the Colorado fields.

* * *

O. J. Fredell, of the Fredell Construction Company of Amarillo, Tex., was in Wichita, Kans., spending a few days during the week. The company recently completed the construction work on the White Eagle Oil Corporation's new pipe line to the Ritz-Canton Field in McPherson County.

* * *

L. P. Harrington of Tulsa, assistant secretary and treasurer of the Pure Oil Company, was called to Bradford, Pa., by the death of his father, Calvin E. Harrington, who passed away on September 19 at the age of 86 years. Deceased was a veteran of the Civil War and had for many years occupied a prominent place in the civic life of Bradford as a member of the Board of School Control and a director of the Carnegie Public Library.

Harold Heller, independent operator, has moved his residence from Okmulgee, Okla., to Tyler, Tex.

* * *

Oras A. Shaw, attorney, of Tulsa, has been elected president of the Pandem Oil Corporation.

* * *

B. P. Sibole, vice president of the Stanolind Pipe Line Company, Tulsa, has been confined to his home for about a week with a cold.

* * *

William M. Lofton, Jr., has accepted a position as research chemist with The Texas Company, Port Neches, Tex.

* * *

Robert W. Eggert, consulting engineer for the Benzol Corporation of Chicago, has been making an examination of the Boxelder Structure in Converse County, Wyoming.

* * *

A. C. Castle, scout for the Stanolind Oil & Gas Company, Tyler, Tex., and Miss Margaret McMurray of that city were married on September 12 at the home of the bride's parents.

* * *

Mr. and Mrs. Cruse and Mr. and Mrs. J. Nagel of Wainwright, Alberta, have returned to their former homes in Texas, owing to the practical cessation of drilling in the Wainwright Field.

Men of the Industry

D. P. Hartson

D. P. Hartson, whose appointment as operating manager of the Equitable Gas Company, Pittsburgh, Pa., was announced recently by F. F. Schauer, vice president and general manager, has been with the organization since 1920, going to it from Philadelphia, Pa., where for eight years he had been with the United Gas Improvement Company. Mr. Hartson was born near Syracuse, N. Y., in 1889 and after attending the public schools he entered Colgate University, from which he graduated in 1913.

Mr. Hartson's first position with the Equitable Gas Company was that of superintendent of Division E. Since then he has filled the positions of gas distribution engineer, gas engineer, superintendent of production and transportation of Pennsylvania, and manager of the system development department. Beginning January, 1927, he was the Pittsburgh representative in working out production and engineering problems in the eastern Kentucky gas field of the Kentucky & West Virginia Gas Company, a Byllesby organization.

Early Deane is back from East Texas and planning to make San Antonio, Tex., his headquarters.

* * *

John Dubendorf, chief engineer of the Shell Petroleum Corporation, Houston, Tex., refinery, spent several days in St. Louis, Mo., on business.

* * *

B. O. Hammond, district sales manager for the Cypress Tank Company, Shreveport, La., was in Tulsa last week on business for his company.

* * *

Alex Smith, president of the Mexican Oil Company and one of the first oil men in Tampico, Mexico, has been visiting in Houston, Tex., on business.

* * *

Herman Stabler, chief of the conservation branch of the United States Geological Survey, and W. C. Mendenhall, acting director of the survey, were Denver visitors last week.

* * *

W. E. Ramsey, vice president of the Ramsey Petroleum Company has returned from the company's Los Angeles, Calif., office, and he expects to spend about a month in Oklahoma City.

* * *

Charles F. Schwab, prominent oil producer, in the Bradford Field, was nominated for mayor of Bradford, Pa., on both the Republican and Democratic tickets, which assures his election.

* * *

L. W. Connor, formerly of Tulsa, who has been operating in the East Texas Field, is now making his headquarters in San Antonio, Tex., and preparing to operate in Southwest Texas. Mr. Connor is now on a trip to New York.

* * *

Ford Turner of the Pure Oil Company, with headquarters in the San Angelo, Tex., office, recently visited in San Antonio. He scouted Southwest Texas for the Pure Oil Company for several years before being transferred to San Angelo.

* * *

J. V. Howell, of Ponca City, Okla., has been appointed by the Superior Oil Company of California district geologist for Oklahoma, with headquarters in Tulsa. The company plans to enlarge its operations in the Mid-Continent area.

* * *

C. F. Camp, of the C. F. Camp Specialty Company, of Tulsa, is expected in Denver, Colo., shortly with a party of Oklahoma men on the way to Cody, Wyo., for a hunting trip. They will travel by air. The party will include 12 persons.

* * *

E. Williard Ziegler, of Oil City, Pa., was recently appointed to the board of directors of the Southwest Pennsylvania Pipe Lines in lieu of D. L. Thomas, Oil City, Pa., who withdrew to become a director of the Cumberland Pipe Line Company, Inc.

* * *

Louis C. Roberts, geologist for the Southern Crude Oil Purchasing Company and in charge of the San Antonio, Tex., office, has been transferred to Fort Worth office of the Stanolind Oil & Gas Company, since the absorption of the Dixie Oil & Gas Company and the Southern Crude Oil Purchasing Company.

* * *

John T. Hayward has joined the engineering staff of the Barnsdall Oil Company in Tulsa and assumed his new duties September 22. Mr. Hayward has had a wide experience in oil field engineering in Rumania and this country and is the author of numerous papers that have appeared in The Oil and Gas Journal and bulletins of the A.P.I.

* * *

H. G. Gloecker, vice president, and C. P. Parsons, chief engineer, of the Halliburton Oil Well Cementing Company, arrived in Greeley, Colo., by airplane on their way to the Greasewood Dome in Weld County to witness the cementing of the Reiter-Foster Oil Company's No. 1 Johnson-Juhl. Jay Taylor, division superintendent at Amarillo, Tex., was in charge of the cementing job.

Natural Gas Industry Developments

SURVEY AT SAN DIEGO FOR NATURAL GAS SUPPLY

LOS ANGELES, Calif., Sept. 26.—Gas engineers of the State Railroad Commission are conducting a survey at San Diego at the request of the city council to get natural gas for San Diego and vicinity.

The San Diego Consolidated Gas & Electric Co., which supplies the coast area of San Diego County with artificial gas, is understood to be willing to serve natural gas if it can be obtained. Natural gas for San Diego depends upon an assured delivery in the Los Angeles Basin from Kettleman Hills of a surplus over the needs of Los Angeles and the surrounding territory. At present there is no excess of gas in sight at Kettleman Hills above present and assured demands. Development of Buttonwillow and Dudley Ridge or the Middle Dome might solve the problem.

It will be necessary to build a 12-inch pipe line from San Clemente, the present southern terminal of the Southern Counties Gas Co.'s system, about 60 miles to San Diego. The artificial gas line now operated by the San Diego Consolidated into Oceanside is too small.

SHELBY GAS APPEAL

DENVER, Colo., Sept. 26.—Judge Charles N. Pray, in the district court for the district of Montana, has granted a motion by the Montana Public Utilities Commission for an appeal to the Supreme Court of the United States from the recent decision by a three-judge statutory court in the Shelby gas case.

The decision by Judge George N. Bourquin, in which Judge Pray concurred and Circuit Judge William N. Sawtelle, of San Francisco, dissented, held that the state commission was not justified in requiring the Great Northern Utilities Co. to establish minimum rates for natural gas service in Shelby equal to those charged by a competing plant in the same city.

NEBRASKA PIPE LINE TAX

OMAHA, Neb., Sept. 26.—The State Board of Equalization and Assessment, through a specially appointed attorney, F. G. Radke, has filed in the Nebraska Supreme Court a demurrer to the appeal of the attorney general, C. A. Sorensen, from the board's action in reducing the assessment of new natural gas pipe lines. The assessment was reduced by 17 per cent from the returns made by county assessors and the attorney general declared the action was "unconscionable and indefensible."

The demurrer asserts that the attorney general has not the legal capacity to prosecute a writ of error to the supreme court from a decision of the board, and assigns other reasons for dismissal of the case.

MOODY-SEAGRAVES OFFICES

Purchasing and accounting departments of the Moody-Seagraves-Morgan Co. have been moved from Houston to San Antonio, Tex. It is understood that the land and other departments will also be moved to San Antonio in a short time.

LONE STAR CASE TRANSFERRED

Judge Robert L. Williams of the Federal District Court at Muskogee, Okla., has advised the clerk's office of his disqualification in the Lone Star Gas litigation started by Governor Murray, and has directed that all motions in the matter be forwarded to Judge John C. Pollock at Kansas City.

GAS NEAR VANCOUVER MAY BE COMMERCIAL

International Pipe Lines, Ltd., a Canadian company, announces that it has developed gas on Lulu Island, British Columbia, south of Vancouver, at 725 feet, in its No. 4 well. While the quantity is small, President C. S. Shippey says it is considered of commercial value under the conditions prevailing and has demonstrated the possibilities of the district.

Gas has been shown before on Lulu Island and sands have appeared to have commercial possibilities, but the fine river sand in the upper formation has broken in, bridged the well and killed the flow. International reported it has solved this problem by the use of mill-grooved fine screen pipe.

More wells are to be drilled. The location assures markets for any production obtained in Vancouver, Victoria and surrounding area.

NATURAL GAS FUTURE SALESMANSHIP PROBLEM

LOS ANGELES, Calif., Sept. 26.—The future of natural gas is largely a problem of salesmanship, not only in the extension of domestic service but also in the industrial field, A. F. Hockenbeamer, president of Pacific Gas & Electric Co., told delegates to the 38th annual convention of the Pacific Coast Gas Association.

Mr. Hockenbeamer said estimates indicate that there is a possible market for approximately 65,000 gas ranges and 118,000 house heating installations, in the territory served by Pacific Gas.

Tracing the growth of the utility's gas department since the inception of natural gas, Mr. Hockenbeamer contrasted sales of 13,500,000,000 feet of natural gas during the first six months of 1931 with 11,500,000,000 feet of manufactured gas in the corresponding six months of 1929. He pointed out that 800 factories and more than 1,000 office buildings, hotels and apartment houses have switched over to natural gas from other fuels, during the period that natural gas has been available in this territory.

REGINA GAS FRANCHISES

CHATHAM, Ontario, Sept. 26.—Owing to delay in arranging the detail of the proposed Regina natural gas franchise, it may not be possible to submit the tentative franchise to the rate payers before the municipal elections, though a special vote may be taken late in October. The franchise, granted to the Power Corp. of Canada, involves construction of a pipe line from the Bowdoin Field and a complete distributing system at an estimated cost of $8,000,000. Owing to the delay, construction may not commence till next spring.

APPALACHIAN GAS

Appalachian Gas Corp. announces that funds for payment of semiannual interest due November 1 on Appalachian Gas Corp. convertible 6 per cent debentures series B, maturing in 1945, have been deposited with the trustee, the Pennsylvania Co. for Insurance on Lives and Granting Annuities.

DIXON, KY., TO GET GAS

The town board of Dixon, the county seat of Webster County, Kentucky, has granted the Central Gas Corp. a four months extension to get gas into the mains in that town. If the contract is not fulfilled, the gas company agrees to forfeit $5,000 and the city of Dixon is to have the piping already laid.

NATURAL GAS AND COAL PENNSYLVANIA RIVALS

Development of the net work of pipe lines used for transporting natural gas in the eastern part of Pennsylvania, which has only recently been able to get the gas in large quantities with the opening of the Tioga County wells, depends greatly upon the attitude of the Pinchot administration, says the Philadelphia Public Ledger.

Governor Pinchot, the Ledger says, has taken the stand that no charters will be issued for the extension of natural gas mains into the thickly populated anthracite region of the State until it is conclusively shown that natural gas will not come into competition with hard coal.

Because it has been feared that the use of gas would further curtail the market for anthracite, applications for charters for the Wyoming County Gas Co. and the Pennsylvania Gas Utilities Co. have been held up and investigation has been under way for more than a month. The Wyoming district is just a step away from the Luzerne and Lackawanna County mines, and Wyoming County itself is an anthracite county. The Pennsylvania Gas Utilities proposes going into the Schuykill district.

There is little to fear that natural gas will come into direct competition with anthracite under present conditions. The Public Service Commission, in its approval of existing pipe lines, has stipulated in each instance that the piped natural gas is solely for the purpose of enriching manufactured gas by utilities now selling the artificial gas. Under an act passed several years ago, natural gas companies may sell their product to companies making their own gas and manufacturers may sell gas to natural gas companies.

None of the natural gas that is piped east from the western part of the State or from Tioga County is used for any other purpose than enriching artificial gas. Fuel oil has been used for this purpose.

The Pennsylvania Power & Light Co., owner of gas areas in Tioga County, has already started to pipe gas to Williamsport and Sunbury and other towns in the territory where it at present controls the gas supply.

Arrangements are now under way of the Lycoming Gas Co., a subsidiary of the Standard Oil Co. of New Jersey, to extend its own lines across the New York state line into Syracuse and intermediate towns.

The Allegany Gas Co., owning large acreage in the Tioga district and wells that are producing abundantly, is supplying communities in Bradford and Tioga Counties and transporting gas to Corning and Waverly, N. Y.

None of the Tioga gas has reached the Philadelphia district, but natural gas is right at the front door of that city. The Manufacturers Light & Heat Co., a subsidiary of the Columbia Gas & Electric Corp., has a pipe line extension running from Fayette County east to Dowingtown.

The only city that taps this line is York, where the Pennsylvania Gas & Electric Co. mixes the natural gas with its own water gas for enriching purposes. Manufacturers Light & Heat Co. has built a 20-inch line from Dowingtown to Washington and the Columbia Gas & Electric Co. has almost completed a line from eastern Kentucky through West Virginia and Virginia into Washington. This will provide two methods of getting gas into the East and also a method for marketing West Virginia gas.

There is a physical connection of the Dowingtown main with Philadelphia, although no natural gas is being transported there. An old oil line has been purchased that would provide Philadelphia with the gas from Dowingtown if the Philadelphia Electric Co. ever desired it.

MT. PLEASANT GAS FOR MICHIGAN COMMUNITIES

The Consumers Power Co.'s 43-mile natural gas line from the gas field in Broomfield Township, Isabella County, Michigan, to Midland has been completed and gas "cut in" the line. Conversion of burners at Midland was begun at once and part of the city now is being serviced with Isabella County natural gas. The complete conversion probably will require about 60 days, according to company officials. Two gas wells were tied-in on the Consumers line. The line between the field and Midland was constructed by the Allied Engineers, Inc., the project involving an expenditure by the Consumers Power Co. of more than $300,000. According to company officials only Midland will be serviced at present, but other cities may be connected later, providing the field proves out. It will be the first test on the stability of the wells in Broomfield Township.

Natural gas was also turned into one section of the Gas Corp. of Michigan's service lines at Mount Pleasant, and the work of converting burners to handle the new type fuel begun. The complete conversion for the use of natural gas in place of manufactured gas is expected to be completed in about seven days.

The Gas Corp. of Michigan completed the conversion work at the city of Clare the first of the past week and several farm services along the route between Clare and Mount Pleasant.

Gas is being taken from the No. 1 Scott well in Vernon Township, Isabella County, to supply both Clare and Mount Pleasant. The old main which carried manufactured gas between the two cities is being used to convey the gas. A reserve of about 130,000 feet of gas will be maintained by the use of a large gas holder at the local plant. The gas from the well will be piped to the tanks and then into the local system. The manufacturing plant will be shut down but not dismantled, being kept ready for emergency service. Pressure of the No. 1 Scott well is about 600 pounds. It is necessary to operate a heating system at the well to eliminate freezing of any of the apparatus because of the low temperatures which are created in the reducing of the pressure from 600 pounds to 50 pounds.

YARMOUTH FRANCHISE

CHATHAM, Ontario, Sept. 26.—The Ontario Railway and Municipal Board has reserved its decision on the application of the Yarmouth, Ontario, township council for approval of a natural gas distributing franchise to the Southern Ontario Gas Co. The application was opposed by the city of St. Thomas on the ground that it would block plans of the St. Thomas Gas Commission for extension into suburban territory.

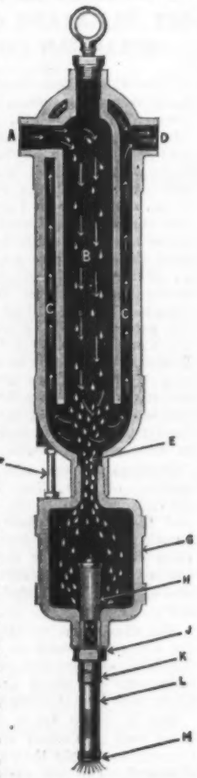
BRITTON FRANCHISE TO WESTON

The Western Service Corp. secured another franchise when citizens of Britton, Okla., by a vote of 369 to 193, favored granting the company a franchise although the Oklahoma Natural Gas Corp.'s franchise does not expire for two years. Officials of the Western Service Corp. announced gas lines to supply the town would be installed immediately, tapping the recently completed line to Guthrie.

Oil Industry Equipment and Supplies

SWENDEMAN SEPARATOR USES NOVEL PRINCIPLE

The Swendeman automatic separator, manufactured by the Leavitt Machine Co., Orange, Mass., is designed to eliminate oil and water from compressed-air lines. It is entirely new in principle. It is not a trap, but is a receptacle which is vented to the atmosphere. As it receives the moisture it expels it immediately, allowing the air no opportunity of picking it up again.



The principle of operation is shown in the accompanying illustration. A is the air inlet; B, inlet expansion chamber; C, outlet expansion chamber; D, air outlet; E, separator drain; F, pressure equalizer; G, eliminator; H, strainer; J, valve connection; K, bypass; L, vent; M, discharge outlet.

Air enters the separator at A, passes into expansion chamber B, which has an area nine times greater than inlet A. This allows the air to expand and precipitate any oil and water into the eliminator G from which it is immediately expelled through vent K.

The air rises to outlet D through expansion chamber C, which has a greater area than chamber B, still further retarding the flow and giving more time for expansion and precipitation of moisture.

"LIQUILOX" INTRODUCED AS PROTECTIVE COATING

"Liquilox," a liquid protective coating against acids, alkalies, salts, indirect heats (from 1,400° to 1,500° F.), waters, barnacles, termites and miscellaneous destructive forces that deteriorate metals, woods, fabrics, stuccos, cements, etc., has been introduced by the Liquilox Co., Ltd., Los Angeles, Calif. According to the manufacturer, this new coating is manufactured by secret process from an ore mined in the western United States. It has been under the process of experimentation for over six years.

An example of its resistance to alkali is related by the company as follows: Seven plating tanks of a major plating company, one containing 18 pounds of potassium cyanide per gallon, were covered with one coat of Liquilox. After 18 months of service the tanks were examined and found to be capable of further service without reconstructing or reconditioning. The product may be applied with either gun or brush to hot or cold surfaces, and does not require technical experience for application.

NOTES ABOUT TRADE LITERATURE

The September number of Oxy-Acetylene Tips, published by the Linde Air Products Co., New York, contains articles on the Lindeweld process for pipe line construction, nondestructive testing of welds, and others of interest to oil men.

A Portable steel powder storage magazine is described in a four-page bulletin published by Littleford Brothers, Cincinnati, Ohio.

The Concenco disc feeder, a simplified machine for metering crushed and ground materials, is the subject of a circular distributed by the Deister Concentrator Co., Fort Wayne, Ind.

ODH unit pumping powers, a new development of the Oil Well Supply Co. and the Nuttall Works of the Westinghouse Electric & Manufacturing Co. for inexpensive pumping at one-half to 30 strokes, are described in a new publication identified by the companies as Circular 1,928. Copies are available through all branch stores of the Oil Well Supply Co. or any Westinghouse sales office.

The Type H Stirling boiler is the subject of a new bulletin issued by the Babcock & Wilcox Co., 85 Liberty Street, New York.

"Petroleum Refining Equipment" is the title of a catalog of 56 illustrated pages issued by the Foster Wheeler Corp., 165 Broadway, New York, covering the installation and general design of the company's complete distillation units. The catalog is obtainable from all offices of the company.

A 172-page catalog, illustrating approximately 30 types of Nordstrom lubricated plug cock valves, has been issued by Merco Nordstrom Valve Co., 343 Sansome Street, San Francisco.

An engineering bulletin containing interesting information on the coatings of Armco spiral-welded pipe, their selection, probable life and other data, has been published by the American Rolling Mill Co., Middletown, Ohio.

The Quincy Compressor Co., Quincy, Ill., is distributing a bulletin giving specifications of its model GV-80 automatic two-stage air-cooled compressor unit.

The Garlock 701 industrial brake lining is described in a four-page folder mailed by the Garlock Packing Co., Palmyra, N. Y.

The Universal Gear Sales Corp., Indianapolis, Ind., is mailing a new catalog on heliocentric speed reducers.

FAST WORK PERFORMED BY AXELSON THREADER

The improved Axelson portable threader, made by the Axelson Manufacturing Co., Los Angeles, Calif., weighs less than 190 pounds. Its operation is fast and its power consumption small. To operate, all that is necessary is to set the machine in a convenient location and attach the plug to a standard light socket. If the work to be done is heavy or long, the threader may be fastened temporarily to a bench or table by bolts provided in the base.

Powered by a Universal reversible motor especially developed for this use by the General Electric laboratory, the threader can be used on any 110-volt circuit. Through this one feature a marked economy is effected by the elimination of any special wiring or installation by electricians. The motor is only one-half horsepower, which is sufficient for all threading operations. The range of the threader is from one-half-inch to 2-inch pipe. Bolt threading dies also may be used although they are not furnished as standard equipment. Two-inch pipe may be cut, reamed and threaded complete in less than 2½ minutes, and other sizes faster in proportion. This speed is made possible by the ease of control and the quick return of the die.

The operating principles are simple. A standard square die is revolved on the pipe instead of revolving a bulk length of pipe through a die head. A straight thread is insured by this principle which also enables the user to run thread on bent and long pipe stands. The material to be threaded is held in place by two self-centering jaw chucks which assure accurate alignment and rapid operation. Pipe and bolt material lying around machine warehouses can be reclaimed by this machine. The dies used in threading pipe are standard square dies which can be purchased from any hardware concern. Bolt threading dies are usually obtainable through the same sources.

A.P.I. SPECIFICATIONS ARE RECOGNIZED ABROAD

Advantages of the specifications adopted by the American Petroleum Institute have been recognized by foreign manufacturers of tubular goods. The August issue of the Commercial Standards Monthly, published by the Bureau of Standards, Department of Commerce, Washington, D. C., contains the following article bearing on the subject:

"Under date of June 9, 1931, the Physikalisch-Technische Reichsanstalt, Berlin, Germany, was advised by the secretary of the division of production, American Petroleum Institute, that the Reichsanstalt had been granted authority to test and certify screw thread gauges made in conformity with A.P.I. standard specifications 5A, covering casing, drill pipe and tubing; and 5L, covering line pipe.

"Similar authority having been previously granted the National Physical Laboratory, Teddington, England, it is now possible for English, German and other European manufacturers and users of A.P.I. standard pipe to have their gauges tested and certified in Germany and England without the expense and delay incident to sending them to the National Bureau of Standards, official custodian of the institute's master gauges.

"Copies of all certificates and reports on A.P.I. gauges issued by the Reichsanstalt and by the National Physical Laboratory are sent to the institute and to the National Bureau of Standards, and the bureau keeps in close touch with the other national laboratories at all times as to equipment and methods of measurement employed, to the end that international uniformity of standards may prevail."

The Page Steel & Wire Co. has opened a southeastern district sales office at 1520 Healey Building, Atlanta, Ga., in charge of R. J. Teeple. Mr. Teeple will have charge of distribution of all Page products in the southeastern district.

MEN KNOWN *in* THE EQUIPMENT FIELD

John S. Bleecker, appointed manager of sales for Lukenweld, Inc. (division of Lukens Steel Co.), Coatesville, Pa., was graduated in 1898 from the Massachu-

John S. Bleecker

setts Institute of Technology, where he specialized in mechanical and electrical engineering. He began his career with the American Bell Telephone Co.

Most of Mr. Bleecker's activities for the 27 years from 1901 to 1928 were devoted to executive management of enterprises for Stone & Webster, Day & Zimmermann, and Bates, Inc. From 1928 and until his association with Lukenweld, Inc., in 1931 he was a registered professional engineer engaged in industrial and public utility work, specializing particularly in transportation and merchandising.

LARGEST COOLING TOWER

An atmospheric-type cooling tower, said to be the largest in the world, has been installed at the new plant of the Texas Utilities Co., Tuco, near Lubbock, Tex. The tower was built by the Schubert-Christy Corp., Affton, Mo., which controls the Standard Power Equipment Corp. Affton. Construction of this tower, which is 706 feet long, with a capacity of 32,500 gallons per minute, required 1,000,000 feet of red cypress. The function of the tower is to recool the water which condenses the exhaust steam from turbines which drive the electrical generators. It cools the water to within 3 degrees of the wet bulb temperature and the makeup amounts to less than 1 per cent. Since being placed in service it has been required to withstand a wind pressure of over 60 miles an hour, extreme temperature changes and hold back the recurrent beating of the sandstorms. Tuco is between Plainview and Lubbock, in the famous Panhandle country of Texas, and previous to the construction of the power plant was uninhabited prairie land. Now it is a town of about 250 inhabitants, for the most part employes of the power company. The name of the town is derived from the name of the corporation.

Cash buyers of "Caterpillar" machines will benefit by the newly announced policy of Caterpillar Tractor Co. of allowing a 2 per cent cash discount from its published factory list prices.

33 Years of Experience in making and applying Timken Bearings

1906—The first Timken Bearing had no cage. This caused excessive friction due to contact of the rolls revolving against each other in opposite directions.
1906—Separation of the rollers by spacing them with small pilots integral with the rollers' heads.
1908—A one piece cage made from sheet steel by a series of press operations.
1909—A single rib on each roller reducing the width of the bearing and giving greater compactness without sacrificing capacity.
1911—Elimination of the ribs on the cage, simplifying the construction and operation of the bearing.
1915—Elimination of both ribs from the roll ends still further increasing the compactness and capacity of the bearing.

The Timken Bearing of Today—Maximum Capacity with Minimum Friction.

Material: **Timken-made steel.**

Design: **A full complement of rollers uniformly spaced around the cone by a truly perforated cage, thus uniformly distributing the load and eliminating internal friction. The rollers are also positively aligned longitudinally by two-area contact on the cone rib.**

A third of a century marked by a continuous series of engineering accomplishments in taking friction and headaches out of one industry after another.

The successful application of an anti-friction bearing to any industry or to any type of equipment vitally requires two basic factors. *First,* correct bearing design, material and construction. *Second,* long experience in applying the bearing to meet individual specialized problems.

The first of these factors has been taken care of by one improvement after another over a period of 33 years.

The second factor—experience—is equally important, both to machinery makers and users.

Timken's 33 years of experience show that it takes several years to thoroughly prove out a bearing in any industry. Furthermore, it takes many years to develop the proper refinements in a product for the specialized service of any given industry—such refinements as the correct heat treating, the necessary precision processes of manufacture, and the proper engineering of bearing mountings. These things come only from minute contact and serious study of the actual operation of the bearing in the field over a period of many years.

Timken Bearings have long since passed that period. The great body of Timken users know that when they buy a Timken-equipped machine they are not experimenting, but that they have the two factors necessary for satisfactory machine operation—the correct bearing, *and* Timken's long experience in applying, mounting, enclosing and engineering that bearing for specific applications.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Production Practices in East Texas

Correct and Incorrect Methods Explained. Use of Old, Non-standard Material Invites Future Trouble, Official States

By Blaine Johnston
Vice President, Simms Oil Co., Dallas, Tex.*

Good practice in the production of oil eliminates unnecessary waste both underground and above-ground; good practice reduces to a minimum those hazards that often result in uncontrolled wells and costly fires; good practice utilizes that equipment and procedure which will effect the greatest possible recovery of oil and gas, and the thoughtful and conscientious operator who habitually seeks to improve his production methods and to conserve equipment is a real asset to the field in which he operates and to the industry as a whole.

The new East Texas fields have brought among us many operators unfamiliar with the oil business who have indulged in careless and dangerous drilling and producing practices. A mistaken idea of economy has influenced others to do likewise. We should take stock of the situation, however, and endeavor, wherever possible, to correct it. It may develop that initial economy will be the most expensive in the long run. A few of the principal operations are discussed in this paper, for the purpose of eliciting discussion, in the hope that better practices will result.

Completion Methods and Hook-ups.

Every known type of well hook-up exists in the East Texas Field, there being many different methods used for the bringing in of wells. In some instances the operator apparently has but one desire, and that is to get the well in as soon as the valves are installed, giving little heed to what could happen.

After the cement has set and the cement plug ready to drill, it is common practice to cut the casing and clamp up, or set the casing collar on the bradenhead. This is usually done by cutting the pipe to the required length and welding back together, taking a strain on casing and anchoring it. When so welded, a strain should never be taken on casing by taking the stretch out as the weld is easily cracked which will not show a leak until hot oil is flowing through the casing under pressure.

Practically every well in the East Texas Field is flowing through tubing, which is suspended from some type of tubing flow head.

In bringing in a well, water is pumped either through the tubing or casing, washing all heavy mud from the well. After complete return of the clear water, the well sometimes kicks itself in. The water, oil and gas is then flowed into the slush pit near the derrick and usually near the battery of boilers. This is bad practice because the high gravity of the oil and the high gasoline content of the gas produces a great fire hazard and a burning well is always a most serious problem.

In some instances it is necessary to swab a well in order to get it to flow. In many cases it will then flow without the aid of swab; and sometimes is allowed to clean itself through the top of derrick. This is bad practice. Some operators use about 50 feet of pipe connected to the top valve of the christmas tree. This permits the flow to pass out through the opening below instead of up through the derrick. When the swab is pulled up into the pipe above the valve, the valve is then closed leaving the swab in the pipe above, and the flow is then turned into pit or flow tanks. This is bad practice as ofttimes the swab is blown out of the hole, coiling the swab line on the derrick floor. If the swab line should coil in the 50-foot casing extension and be overtaken by the swab and bridge, the valve could not be closed and a fire hazard will result as well as loss of production.

Correct Practices

When a tubing head and valves are installed on a well, each and every valve should be inspected, and every nut tightened, and all valve stems repacked or inspected regardless whether valves are old or new.

A flow line should be connected to the well connections and laid to a pit of sufficient size to hold the amount of fluid necessary to clean the well. This pit should be at least 100 feet from the well, out in the open where the oil can be burned at leisure without danger to tanks or well.

After the well is completed as a producer, a pipe line should be laid out on the lease 100 feet from the well and connected just below the ground, at the well's 6-inch casing by a 4-inch gate with a heavy check valve ahead of gate valve, installed so the well pressure will be against the check valve to hold the flow. In this manner the 4-inch valve will be left wide open at all times and if at any time the tubing head connections should be broken off during a storm or hit by lightning and set on fire, a small pump can be connected to the end of dead line without danger and water pumped down through the casing and up through the tubing, thereby killing the well and at the same time extinguishing the blaze. There is usually enough pipe around on the lease for this purpose and this simple preventive can be installed at very little expense.

If this practice had been followed on wells on which the derricks were recently blown down, it would have eliminated the loss of production, possibility of disastrous fires as well as much mental strain on the operator and oil owner.

When swabbing a well, the correct or safe practice is to listen to the fluid level after each run of the swab. This can be done by dropping a pebble and timing the interval for the pebble to hit the fluid. If this interval decreases, it indicates that the fluid is rising and that the well will flow under its own pressure. When it is impossible to hear the pebble strike the fluid, the fluid level can be determined by running the swab and if the fluid level is rising remove and discontinue swabbing, close the top gate and divert flow to lead lines.

Pumping Equipment

Every operator in East Texas today is wondering what is the most practical pumping unit to use. There are many units that are practical, in fact, all units manufactured today are good.

There are many operators who have second hand pumping units and standard rigs in other districts which may be transferred and many dollars saved. However, the most of this equipment is rather light for East Texas requirements. No one can be censured for this move as the 4½-inch units and rig irons and 25/30 engine and motor will give satisfactory service as long as clean oil and gas is produced. After water enters the field it is almost certain that 6-inch rig irons or units as well as 40-horsepower prime movers will be needed. Therefore, careful consideration should be given to size when purchasing new equipment.

The next important question is to determine the kind of energy that is most reliable and economical for the life of the field. It is well to bear in mind the history of the Woodbine sand in the Mexia district. The gas from these wells was short lived even before water entered and the gas was not sufficient to furnish fuel for the leases in most cases. In buying gas engines to operate a lease, it will be using good judgment to include a combination crude oil head. This will solve the fuel problem later on very economically.

There will be many electric motors used. They are considered one of the best prime movers for pumping purposes, so far as the wear and tear on pumping equipment is concerned, and if the power rate is right, it is an ideal way to produce oil. However, there is considerable danger even using electricity if located where escaping gas can come in contact with motor or switches. This

Figure 1—Sketch of hook-ups for chemical treatment for paraffin.

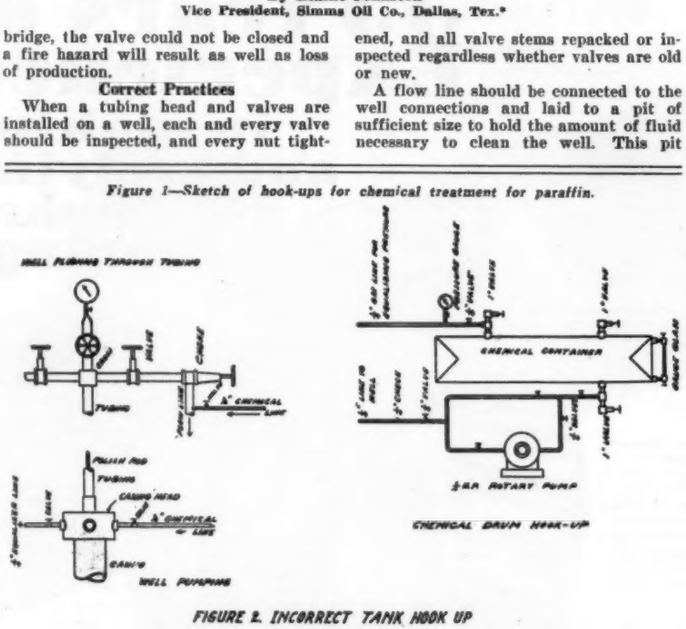


FIGURE 2. INCORRECT TANK HOOK UP

SKETCH ILLUSTRATING POOR POINTS IN TANK BATTERY HOOK-UP

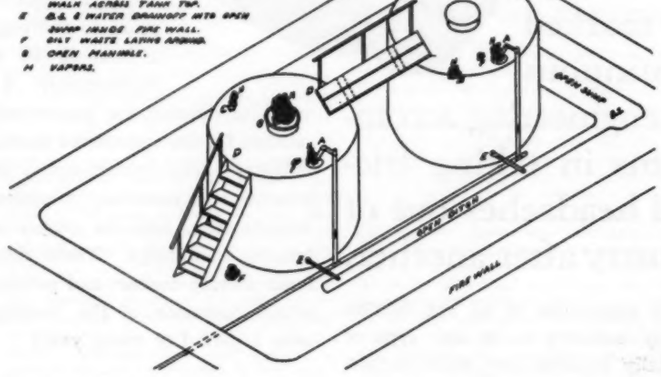
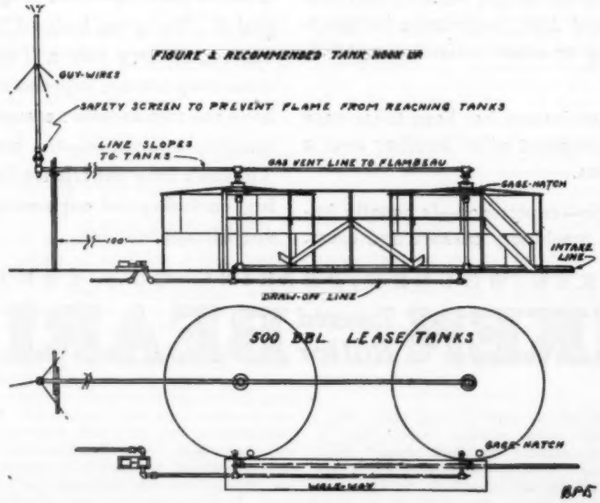

A FLOW AND GAUGING INTO OPEN HATCH.
B NO GASKET UNDER DECK.
C INSIDE OPEN AS DECK
D POOR GUARD RAILS, CAUSES MUST WALK ACROSS TANK TOP.
E B.S. & WATER DRAINOFF INTO OPEN
F SUMP INSIDE FIRE WALL.
G OILY WASTE LAYING AROUND.
H OPEN MANIFOLD.
I VAPORS.
OPEN SUMP
OPEN PIPE
FIRE WALL

FIGURE 3. RECOMMENDED TANK HOOK UP



*Presented before the September 24-25, 1931, meeting of the Southwestern District of the American Petroleum Institute, Division of Production, Lufkin, Tex.

may be true to a certain extent on gas or oil engines.

All tubing placed in wells for flowing purposes is spaced from 50 to 200 feet from bottom of well. Under this practice the drilling mud, containing sand and shale, is left in the bottom of the hole and if the well is not bailed or sand-pumped before putting on beam this mud must be pumped out with tubing and rods. Under this condition a plunger type barrel should be used; after a few days pumping there is a possibility of plain barrels giving splendid results.

It is common practice with almost all operators to take up 4-inch flow lines after a well has stopped flowing and replace them with 2-inch or 2½-inch lead lines. From an economical operating standpoint it is much better to leave the 4-inch line to pump through as it will not put as much pressure on the tubing as a smaller line. The difference in labor in making the change will offset the difference in saving of salvage pipe.

The pumping period in the East Texas Field will last much longer than some people think, therefore, it is wise to purchase good substantial equipment at the beginning while the production is high, then later on when the production is low the lifting cost will also be low because of low replacement costs. It is just as cheap to buy standard A.P.I. equipment that will interchange with future purchases—saving in time and money to all concerned.

Treatment for Paraffin

With the coming of cold weather and as more wells are put to pumping, the trouble from the deposit of paraffin will no doubt increase greatly. The chemical treatment for the prevention of this paraffin deposit has been very successful in other fields, and might prove to be so in this field also.

A hook-up for this chemical treatment is shown in Figure 1.

For the pumping well, the chemical is introduced into the casinghead of the well and passes through the annular space between the casing and tubing to the bottom of the tubing, where, intimately mixed with the oil, it is pumped out through the tubing. If the tubing or flow line is already badly paraffined when the chemical is introduced, the paraffin is loosened and pumped out in small chunks. Thereafter while the chemical is being used, it keeps the paraffin from forming and the tubing and lines clear.

To the right of the sketch is shown a hook-up for the chemical drum. Where the chemical is not to be put in against pressure, the chemical container can be made of almost any light material. Where it is to be introduced against pressure, a pup joint of old casing about 7 or 8 feet long, with ends and outlet collars welded as shown on the sketch, makes a satisfactory container. To the left at the top of the container is shown an equalizer line, which can be connected either to the pumping well's casinghead or to an outside pressure source to equalize or increase the pressure in the container if the chemical is being introduced against pressure, so that it will not have to buck this pressure. The outlet from the container is shown manifolded so that it can be used either as a lubricator or forced in by a small quarter-horsepower rotary pump if electricity is available at the well. The pump method makes a satisfactory way of introducing the chemical as it can be regulated to the desired amount and makes a positive source regardless of changing weather conditions.

Because of the temperature of the oil and the back pressure held on the wells, flowing wells will probably not be troubled by paraffin in the tubing. However, if they should paraffin up in the flow line between the choke and the tank where a large part of the pressure may be released, the chemical could be put into the flow line just after the choke, as shown on the sketch. If the tubing should paraffin in a well flowing through the tubing, a small size of tubing can be run inside the flow tubing to a depth below that at which the paraffin forms. The chemical can then be forced down through this smaller tubing to mix with the oil and flow up through the large tubing keeping it clear from paraffin.

Tank Battery Hook-up

Figure 2 shows an improper tank battery hook-up. This hook-up dates back to the early days of production and is still used by a number of operators located in the East Texas fields. This is bad production practice.

Note the open hatches and openings around the edge of the roof that allow the gas to flow about the vicinity of tank. This is a fire hazard and robs the oil of its highest gravity. Also notice the walkway between tanks. This does not extend across the top of tanks and if it did it would not be of any assistance to a gauger who might become asphyxiated and fall with his head in the escaping gas and probably die before aid could reach him or he might fall off of the tanks to the ground.

The risers or flow lines from separators or wells are not connected with a flange in the top of the tank, but a nipple is merely inserted through the hatch hole. This is bad practice for the reason that it splashes the oil and gas over the deck of tank and does not permit visibility of the flow.

The bleeders for drawing off b.s. and water from the bottom of tanks are allowed to drain into a sump hole and later picked up by a pump and retreated. This is waste and is a fire hazard—and causes what is commonly called "bad housekeeping." Note Figure 3 for a better system.

The cost for a tank set-up of this kind is just about as expensive in dollars and cents as the cost of a modern up-to-date tank hook-up.

Improved Tank Hook-up

Figure 3 illustrates what is considered a proper tank hook-up. Other batteries are used, different in construction and design, with pipe connections, vent lines, etc., installed differently to suit the idea of the engineer or superintendent, but the principle is the same. Safety and economy is evident in a tank set-up if the general design shown in Figure 3 is followed.

Note the 4-inch vent line running from the top of the center hatch to a point some hundred feet away from the tanks. A bull-headed tee diverts this line upwards and a safety screen is placed in the riser. The horizontal line is sloped towards the tank so that any condensation will drain back into the tank. This permits the burning of the tank vapors at the top of the riser with safety.

It is necessary to conduct the vapors away from the tank battery because it is hazardous to let the vapors, as such, escape into the atmosphere. The vapors being heavier than air fall to the low places and are apt to be ignited causing loss of life and property. The function of the safety screen is to prevent propagation of flame from the torch back through the line to the tank in case a mixture of air and tank vapors are in such proportion as to be combustible. This can easily happen when a tank is pumped out and air enters the tank to displace the oil. The suggestion that the tank vapor line be connected to the trap vapor line so that in case of a tank drawing in air while pumping out will take gas from the trap line instead, thereby preventing a formation of a combustible air and gas mixture, is not feasible since often the tanks are being pumped out when no production is running into the trap, in which case air enters the tank as before.

This flame arrestor is made with two 4x6-inch swedges connected with a 6-inch flanged union. Inserted between the flanges are three layers of 30-inch miner's copper gauze separated by one-eighth inch asbestos gaskets.

Past experiences with wire screen flame arrestors inside of pipes have not always been satisfactory, but in experiments with this safety screen, or flame arrestor, it was observed that ordinarily an air and gas mixture will travel back as far as the copper gauze where the temperature is reduced by the rapid conduction of heat by the copper gauze, below the ignition point and the flame goes out. However, it was found that in a critical air and gas mixture the flame will burn in the first layer of the copper screen until it gets red hot in the center. It was left to burn at this point for 30 minutes, but in no case did the flame get to the other side of the screen. Even with this flame arrestor installed explosive mixtures in stock tanks should be avoided by excluding air and keeping the vapors too rich to burn. How this can be done practically is a question. Suggestions on this point are invited. The plug in the bottom of the bull headed tee permits the line and flame arrestor to be cleaned in case of scale accumulation.

Walkways

The walk is located along the side of tank about 3 feet from the top and extends the entire length of tank battery. It is not necessary for a gauger to go on top of the tank, and if he should become asphyxiated and fall while thieving or gauging through the hatch, he would naturally fall on the walkway from the gauge hatch and out in the open air.

Riser From Flow Line

The riser or flow line from separator or well is connected through a flange on the side of tank just under the edge of roof with a hatch hole 6 inches from the flow pipe. Tanks can be gauged without the gauge tape being covered with oil from the flow, and stream of fluid can be seen without soiling the top of tanks.

B.s. and Water Bleeders

A pump of any convenient size is set alongside the tanks. All bleeder or draw-off l nes are connected into the suction. When it is necessary to draw off basic sediment and water, the pump delivers it through the treating system. All recoverable oil is saved in this manner and all free water can be drawn off at the gun barrel. This keeps the inside of fire walls clean and free from fires.

Production Equipment

There has been a tremendous quantity of nonstandard material shipped into East Texas; there are also great quantities of second-hand material of every sort and description shipped in from other fields. It is realized that this material has been used to economize and possibly most operators are guilty in some degree. The use of old, nonstandard material invites future trouble in a good many cases and the desirability and necessity for specifying A.P.I. standards on all classes of equipment should be emphasized whenever and wherever possible. This applies particularly to such material as tubing, sucker rods, working barrels and tanks. The A.P.I. specifications provide for interchangeable threads which will be of tremendous advantage, particularly in cases of emergency. The use of A.P.I. standards will also result in very substantial savings in replacement costs. Most of the supply houses now stock A.P.I. equipment. Specifying A.P.I. standards as a general practice will insure a ready source of supply of standard material in any fields. An additional advantage in using A.P.I. standards is that many of the A.P.I. specifications provide for minimum grades of quality which will insure material of known grades and strength and reduce mechanical failures.

There has been some misunderstanding in the East Texas Field about the A.P.I. standards on bolted tanks. At Chicago last December this specification was changed to a tentative status for the purpose of making certain refinements in the specification which were needed in order to insure interchangeability of staves. The fact that this specification was made tentative did not in any way remove it from the list of A,P.I. standards except that the institute withdrew the right to use the monogram on tanks made to this tentative specification. This situation has since been cleared up; the specification was revised at the mid-year meeting of the division of production held in Dallas last June, and the revised specification has since been printed and circulated to all tank manufacturers who are licensed to use the A.P.I. monogram, and their right to use the monogram has been reinstated. The main difference be-

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CORRECT AND INCORRECT DRILLING PRACTICES IN EAST TEXAS FIELDS

By C. W. Alcorn
Shell Petroleum Corp., Dallas, Tex.*

In every oil field in the world thus far developed certain practices have been followed in drilling that can be classified as bad and other practices have been followed that can be classified as good. The mammoth oil field located in the counties of Rusk, Gregg, Upshur and Smith in the eastern part of the State of Texas, commonly known as the East Texas Field, is no exception. The same situation will probably exist in most fields of the future so long as different organizations are interested in the development work with the usual individuality of procedure and resultant differences in practice. It is fully realized that the branding of certain practices in drilling and completing wells as "good" or "bad" is often a matter of opinion, therefore it is not expected that the good and bad practices defined herein should be accepted as the last word and testament for East Texas. This paper, however, does represent the observation of many operators in the field and so can be accepted as a fairly correct resume of the drilling and completing practices followed in the East Texas Field. Under normal conditions the use of some classes of second-hand equipment should properly be considered as bad practice, but the fact is recognized that the present price of oil and business conditions generally may render the use of such equipment necessary and advisable at the present time.

Derricks

If wood derricks are used they should be built in accordance with A.P.I. specications and only thoroughly seasoned lumber should be used in their construction. Green lumber will suffer severe shrinkage, greatly reducing the strength and increasing the liability of accidents. Girts may pull loose and fall on well fittings or workmen. It is for the purpose of economy that wood derricks were built, but care should be taken that they are of good material and are erected properly. Wood derricks present a fire hazard principally because of liability of blowing over and breaking well head fittings.

If steel derricks are used, they should be built in accordance with A.P.I. specifications. Many steel derricks built to regular A.P.I. dimensions are now in use in East Texas, but it is doubtful if all will meet all the stipulations in the A. P.I. specifications.

Boilers

Purchase boilers to A.P.I. specifications and follow the A.P.I. recommendations on the care and use of oil field boilers. The Institute has published recommendations on setting boilers, firing up, cleaning, etc., which are available in poster form, convenient for tacking on boiler house walls, in bunk houses, tool houses, etc.

Boilers should be set at least 150 feet from the well being drilled and should never be set down the prevailing wind from the boiler. Setting the boiler closer than 150 feet, or setting it to windward of the well, increases the chances of the well catching fire from its own boilers during completion or in the case of a sudden gas blowout.

Old boilers should be given a thorough inspection by a competent boilermaker before being put in service.

If the boiler feed water contains scale-

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*Sponsored by the Southwestern District Drilling Practice Committee. Presented before the September 24-25, 1931, meeting of the Southwestern District of the A.P.I. Division of Production, Lufkin, Tex.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

MORE ON WELL SHOOTING

I was interested in your article, "Would Shot Be Necessary?" in The Oil and Gas Journal of August 27 and would appreciate the following information: The article states, "Before placing the sand tamp above the shot it is the usual practice to form a bridge above the shot with either oakum or willow brush and then dump the moist sand with a side dumping bailer." Is the bridge placed directly on top of the shot? If so, how is it constructed? How is the oakum prepared and placed above the shot so as to keep the sand from passing by? What method is used to explode the shot? How is a side dumping bailer constructed? Where can one be obtained or where can I find an illustration of one?—L. J. P.

Answering your questions in their order:

1. Is the bridge placed directly on top of the shot?

The position of the bridge with relation to the top of the shot will depend upon whether solidified or liquid nitroglycerin is used. If solidified nitroglycerin is used water may be dumped in the hole around the shot to make it more effective and under such conditions the top of the water in the hole will determine the position of the bottom of the brush or oakum bridge. If no water is used around the shot the bridge should be about 2 feet above the top of the time bomb used with the explosive.

2. If so, how is it constructed?

To construct a bridge above the shot it is recommended that any kind of springy brush with twigs not over one-fourth in diameter be used. Willow brush is well suited for this purpose and it or something of this kind is usually available near the well.

Incase enough of the brush in burlap to make a bundle large enough to fit tightly into the casing. The bundle may be run to position by the use of a bailer or tools. The use of a string of clean-out cable tools is preferred because by this method it is possible to place the bridge more accurately than with a bailer and accuracy in placement is important.

After the bundle of brush is in place in the hole the next thing to do is to place from 6 to 8 feet of broken brick or tile immediately above it. This material should be broken to sizes approximately one-third the diameter of the casing in which the shot is placed. This size will permit the broken tile or brick to form a series of bridges up the hole and give good support to the sand tamp placed above it.

Moist sand should be placed above the broken material. The finer the sand the better will be the results. The amount of sand fill above the brick bridge will be determined by the length of the shot in the hole. The sand tamp never should be less than 3 feet of tamp for each foot of explosive column.

It is well to remember that it is possible to get too little sand tamping above the shot but never too much. The sand tamp can extend up into the casing without causing damage to the pipe, but it is good practice to have the distance between the bottom of the casing and the top of the shot not less than 35 feet in any event.

This sand can be poured into the top of the hole if the total depth at which the shot is placed is not over 3,000 feet. For greater depths it is usually good practice to place it with a bailer.

It is possible that some supply houses now handle this type of side dump bailer.

In making the foregoing recommendations it is assumed that the bottom of the casing in the hole will not be closer than 35 feet from the top of the shot. This should be the minimum space between the casing and the shot and under such conditions the recommendations will give good results.

3. How is the oakum prepared and placed above the shot so as to keep the sand from passing by?

Oakum should be used in exactly the same way as the twigs or brush. It should be made into a bundle covered with burlap and slightly larger than the diameter of the casing so that it will make a snug fit when placed. Oakum is much more costly than brush and not so easily obtained at the well and the willow brush or similar material is therefore recommended.

4. What method is used to explode the shot?

Either of two methods can be used, the time bomb or the electric squib. The former is preferable because with it no wires are needed extending to the surface and the bomb can be set to explode at such time as to give ample opportunity to complete all work in preparing the shot.

It is obvious that the electric squib method cannot be used where broken brick or tile bridge is used for the wires would have to pass through this mass of broken material and would probably be damaged.

5. How is a side dumping bailer constructed? Where can one be obtained or where can I find an illustration of one?

The engineering department of the Midwest Refining Co., Midwest, Wyo., has developed a sand dumping bailer of the side dump type which is said to be quite satisfactory in operation, and perhaps you can obtain a blueprint of it on request. It is possible also that some of the supply houses are now handling this type of side dumping bailer. The Midwest company has used with success the method of shooting wells here described. Wells that previously had been shot 1 to 12 times by ordinary methods have been increased in average production from 7 bbls. per day to nearly 70 bbls. by using the sand tamping method outlined here. This result has been uniform in over 100 wells so shot in the Salt Creek, Wyoming, Field and like results have been achieved in other areas.

For your information it has been found that an empty nail keg can be used to measure the amount of sand needed for the tamp. A keg will hold enough sand when filled level full to fill about 3½ feet of 6-inch pipe. From this known fact it is possible to estimate the amount of space a keg of sand will fill in any other size casing.

It is well to remember in using this method that the well should first be bailed just as dry as possible. If the solid nitroglycerin is used the space around the shot can be filled with water later if desired but this should be placed with care and the exact amount used carefully measured into the hole. The water can extend above the top of the shot a considerable distance if desired, and in that event the position of the willow brush bridge will be determined by the water level.

Another important thing is that there should be no water above the sand tamping. This is another reason why the hole should be bailed dry before the shot is placed and any water added later should be carefully measured.

You are referred to an article by Paul F. Lewis of the American Glycerine Co. that was published in the November 6, 1930, issue of The Oil and Gas Journal on "Theory of Mechanics of Explosives." It will be of interest to you in connection with this matter.

WHY WAS IT CALLED THAT?

SLICKENSIDE

This queer-looking geological word designates a smooth, polished and often grooved surface of rock produced by the sliding of one body on another in faulting. It was formed by combining the dialectic English word "slicken" (slick, smooth) and "side."

EXPLANATION OF FAULT

Articles on the geology of oil fields often refer to "faults." What is a fault, please?—L. F. Y.

"A fault," says M. W. von Bernewitz in his "Handbook for Prospectors," "is a break or dislocation in the continuous strata or masses of rock attended by a movement on one side or the other of the break or crack, so that what were once parts of the rock or vein are now separated. This action mostly takes place in the stratified rocks, whose beds are forced out of their original horizontal position into various folds. The distance of the movement may be a few inches or many feet. One instance of a copper vein in California was 1,100 feet. There are different types of faults, some of them complex.

"All of the stratified rocks were originally laid down in a flat or horizontal position, but have since become tilted in two directions, the result of earth disturbances. The inclination of these rocks from the horizontal is their dip or underlay, in other words the slope downward from the surface. The other direction is the strike or pitch of the rock. These statements apply also to veins."

NATURAL GAS PRODUCTION

Please advise us whether textbooks or bulletins are available that discuss natural gas, dealing particularly with the relation of theoretical rock pressure to the depth of producing wells; the relation of specific gravity to natural gasoline content, if any; common recoveries of natural gasoline per 1,000 feet of gas, and the gas-oil ratio of various fields.—V. G. H.

One of the best books on natural gas is published by the Metric Meter Works Co., Erie, Pa., and edited by John Diehl. If you get a copy of it you will find that it contains much of the information you desire. It is suggested that you write to the U. S. Bureau of Mines, Bartlesville, Okla., for copies of its bulletins and technical papers on gas production. They are complete and comprehensive.

All of the facts you seek are not contained in any one book but most of them can be obtained from those mentioned. A circular published by the technical department of the Tulsa Public Library lists books on oil subjects. It would be worth while for you to send for it.

MORE CONCERNING DEEP WELLS

Since the question by E. W. K. relative to the world's deepest well was answered in the issue of September 3 additional information has reached this department. The answer stated that the deepest commercial producer in the world was the Associated Oil Co.'s No. 57 Lloyd in the Ventura Pool, California, which at 8,823 feet was reported to be making 4,888 bbls. when brought in, this being increased later to 5,282 bbls.

Reports received on wells completed by the Big Lake Oil Co. in Reagan County, Texas, indicate that the record made by No. 57 Lloyd has been surpassed. The following table gives the depth and the quantity of oil produced by five wells of the Big Lake Oil Co.:

Well No.	Depth (feet)	Total production to Aug. 31, 1931 (bbls.)
1-C	8,908	749,000
2-C	8,608	729,000
3-C	8,923	56,000
4-C	8,697	972,000
5-C	8,872	651,000

It will be noted that wells 1-C, 3-C and 5-C, all commercial producers, are deeper than the Associated's No. 57 Lloyd and it is asserted that No. 3-C, with its depth of 8,923 feet, in view of the grade of oil it yields and the quantity of gas it produces, should be classified as a commercial producer.

Exceeding all of these, however, is the Continental Oil Co.'s McGrath-Selover well No. 24 at Seal Beach, Calif. This well, while not finally completed at last reports, was said to be a commercial producer at a depth of 9,054 feet.

WELL-CLEANING PROCESSES

Is there any process for the cleaning and reworking of small producing or abandoned oil wells that is recognized as effective and cheap enough to be practical? I understand that repressuring has not proved successful, but that certain chemical treatments have to a marked degree.—L. M. S.

An article in the July 9, 1931, issue of The Oil and Gas Journal entitled "New Process for Cleaning Out Wells" describes a method which might prove of interest to you. It is a chemical method and you can get full details by addressing Leo Ranney, president, Ranney Oil Mining Co., 26 Broadway, New York. Bibliographies on removal of paraffin from oil wells and cleaning out oil wells may be obtained from the technical department of the Tulsa Public Library.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

OCTANE NUMBER AND VOLATILITY

We are running a crude that produces a very low octane number naphtha at 430 to 437 endpoint. Will running a lower endpoint naphtha from the same crude produce a higher octane number? We have found by experience that we do not get as much knocking in the motors with a low endpoint as we do with a high endpoint.—J. T. M.

The important factors involved in the detonation of a motor fuel include temperature, pressure, air-fuel ratio and the actual composition of the fuel. The wide differences in the chemical structure of gasoline is now generally recognized. The compounds naturally present in gasoline may vary through a range of very simple hydrocarbons, which are bad knockers, to the complex compounds of the aromatic series of decided value in lowering the knocking tendency of a gasoline. It is plain that a gasoline composed largely of the paraffin hydrocarbons, and with little or no aromatics, must have a lower knock rating than another gasoline containing a relatively large proportion of the aromatic compounds and a low percentage of the paraffins. This explains why a cracked portion from the same crude may have a much higher value for its nondetonating qualities than the gasoline obtained by simple distillation; part of the paraffin hydrocarbons have been converted to aromatic compounds.

It is also true that the molecular arrangement of the various paraffin hydrocarbons is important as influencing the detonation tendency. It has been shown, for example, by the investigations of Graham Edgar that the hydrocarbon 2-2-4-trimethyl pentane, iso-octane, has less tendency to knock than any known gasoline. This has resulted in the selection of this compound when mixed with normal heptane, a bad knocker, for the purpose of classifying motor fuels as to knocking. The percentage of octane in the mixture which when tested equals the sample being known as the octane number.

It is generally accepted that knocking increases with the length of the hydrocarbon chain, that is molecular weight, and with rising boiling points. The very light portions of gasoline are known to knock less than the heavier one; the use of natural gasoline to increase the volatility of the product has been found to also improve the knock rating.

D. P. Weld, discussing Knock Rating and Distillation Range in The Oil and Gas Journal, March 5, 1931, page 98, shows the trend of octane number as related to volatility. Seven fractions were separated from a raw naphtha and these combined in various ways to produce gasolines. Distillation tests and octane numbers for these are reported. The lowest and highest figures were: At 10 per cent off, 170°-256° F.; 90 per cent, 311°-387° F.; octane number, 50-61.

"The results show that by sacrificing a yield of 24.9 per cent from the heavy end of Gasoline A, the octane number is raised 6 points while the elimination of 28.2 per cent of light ends from Gasoline A lowers the octane number 5 points.

"In general, it is shown that the octane numbers vary systematically in the expected manner with the boiling ranges of the gasolines. As was to be expected, the highest octane number was found in the gasoline having the lowest 10 and 90 per cent points. This is no indication that any of the fractions used in blending the gasolines have any unexpectedly high knock-promoting or knock-suppressing properties."

Considering these different facts it seems that the more volatile of two gasolines will knock the less but this may depend also on the source of the gasoline and the possible presence of cracked material. It does not appear reasonable that the endpoint will have much bearing on the detonation characteristics, except to the extent that it influences the total volatility of the fuel, especially when it is kept within the limits now adhered to for high grade gasolines. Most of these have a 400° endpoint or less.

LIMA CRUDE PETROLEUM

We would be pleased if you will show the component parts of crude petroleum particularly Lima crude petroleum giving also its heat units per gallon or pound and its relative value to coal?—R. G. K.

The analysis following, showing the yield obtained by the dry distillation of Lima petroleum, is adapted from Day's Handbook, Vol. 2, page 332.

Yield From Lima Crude Oil Run to Coke Gravity of the crude oil—34.6

Product—	Gravity	Per cent
Gasoline	58.7	19.22
Kerosene	42.4	25.10
Prime white distillate	38.2	21.55
Gas oil	34.5	10.56
Lubricating distillate	28.9	12.95
Fuel oil	17.8	2.34
Tailings	8.9	0.31
Coke	...	4.71
Loss	...	3.25

The heating value of the crude oil is equivalent to 139,548 B.t.u. per gallon, or 19,634 B.t.u. per pound.

The average good grade of coal will test 12.000 B.t.u. per pound. When considering the relative fuel values of different materials it is necessary to know just what efficiency it is possible to obtain. This will vary with the form and composition of the fuel, furnace conditions and design, methods of handling and the skill of the fireman. It is the common practice to compare fuels on a B.t.u. basis, but ultimate delivery together with handling expense, are important items that must influence the final conclusion.

MANUFACTURE AND USES OF CARBON BLACK

I would appreciate it very much if you will inform me where I can get information on the manufacture and uses of carbon black?—J. L. T.

The larger part, about 80 per cent, of the carbon black manufactured in the United States is produced by the channel process. This name is derived from the use of moving channels which pass through the smoky flame of the gas. The carbon is deposited on the cool surface of the iron, from which it is removed by scrapers, falling down through hoppers it reaches the crew conveyor to be transferred to the packing house, where it is bolted, compressed, and packed in paper bags containing 12.5 pounds.

Very little labor is necessary because the entire operation is automatic. The essential conditions involve adjustment of the flame and rate of combustion to yield a black that is soft and fluffy and of intense black color. The formation of hard or gritty particles is highly objectionable. The product must produce a strong color when mixed with oil and must not tend to retard the cure when used in rubber products.

The largest quantity of carbon black is consumed in the manufacture of tires, over 152,520,000 pounds being required for this purpose during the year 1929. Large quantities are used in the manufacture of printing ink. Other uses include paint, stove polish, crayons, carbon paper, hard rubber articles such as telephone instruments and phonographic records, insulating materials, linoleum, bookbinding, coloring of cement, etc.

Additional information may be obtained from U. S. Bureau of Mines, Bulletin 192; Ind. Eng. Chem., Vol. 20, 904, 1928, by C. R. Johnson; The Oil and Gas Journal, June 16, 1927, Page G-198, by R. L. Carr; Ind. Eng. Chem., Vol. 23, 178, 1931, by W. G. Wiegand.

NONVISCOUS NEUTRALS FOR LIGHT DUTY

What grade of oil is most suitable for lubricating typewriters, guns and sewing machines? What viscosity is most suitable?—X. E. D.

The group of mineral lubricating oils of lowest viscosity known as the nonviscous neutrals are extensively used for lubricating delicate machinery of all sorts and are suitable for use on instruments, guns, valves, small and light machinery such as sewing machines and typewriters, and for general purposes.

While some refiners making these oils from the light ends of the lubricating distillate, separated from the crude oil during the primary distillation as a cut just below the gas oil fraction, do nothing more in the way of purification than filtering through fuller's earth, they are frequently obtained from a cut made during the redistillation of lubricating stocks. There are other grades which have been subjected to acid treatment contracting with special clays, or filtered through fuller's earth.

The term nonviscous has a relative meaning with respect to the extremely heavy oils and as originally used, simply intended to indicate that oils of this class were of very low viscosity, the general range of viscosity being approximately 50 to 150 Saybolt Universal at 100° F. The general properties are, in addition to viscosity, gravity 26 to 37 A.P.I.; flashpoint open cup 300° to 360° F.; color—usually 2 or better; pourpoint 0 to 30° F. As a rule, the asphaltic base lubricating oils have a lower pourpoint than those from paraffinic oils.

The bulk of these oils are sold without the addition of any special odorizing substance and consequently, have practically no odor or only a slight characteristic mineral oil odor. When sold in small lots the nonviscous neutrals are often given a distinguished odor by the addition of a very small quantity of oil of cedar or oil of bitter almonds.

KEROSENE FOR ILLUMINATING OIL AND TRACTOR FUEL

What are the specifications of American kerosenes, produced from the chief crudes of the United States, both governmental and commercial, for (a) burning kerosenes; (b) for kerosenes used as tractor fuels?—N. S.

Kerosene is the product separated by distillation from petroleum, after the removal of gasoline, and before the fraction called gas oil. The specific characteristics of this produet may vary to a considerable extent according to the nature of the petroleum distilled. In a few instances the density is low, around 32° A.P.I. (Sp. gr. 0.8654), as obtained from certain Louisiana and California oils, and may occasionally be found to have a high gravity of 48° A.P.I. (Sp. gr. 0.7883), but the bulk of the kerosene marketed in the United States falls between 40° and 42° A.P.I. (Sp. gr. 0.8251-0.8155).

The government specifications do not mention gravity but require the following: Color—not darker than 15 Saybolt; flashpoint—not below 115° F., closed cup; sulphur—not above 0.125 per cent; flock—negative; distillation—endpoint not above 625° F.; cloud—none at 5° F.; burning test—shall burn freely and steadily for 16 hours. The commercial grading of kerosene for illuminating purposes while frequently being made on the basis of color, gravity and flash point may include other properties. The color requirement is often raised to 21-25 Saybolt, gravity between 40° and 42° A. P. I., and flashpoint not under 120° F., closed tester. The burning, or lamp test, is the most important, sometimes being required to pass a 72-hour test, but seldom passed under a 48-hour test. Occasionally the viscosity is specified 350-450 Saybolt thermoviscosity. For the better grades a negative doctor test is also required. The distillation range is usually between 300° and 600° F.

The only difference between ordinary kerosene and the grade used for tractor fuel is difference in purity. It is not necessary to refine the tractor fuel to the degree required for a high-grade illuminating oil. In many instances commercial kerosene that would pass the tests made on an illuminating oil is used in tractors, but when market conditions tend to high prices, the untreated distillate is liable to be purchased at the lower prevailing price. The gravities are liable to be heavier, much darker in color, and the endpoint high.

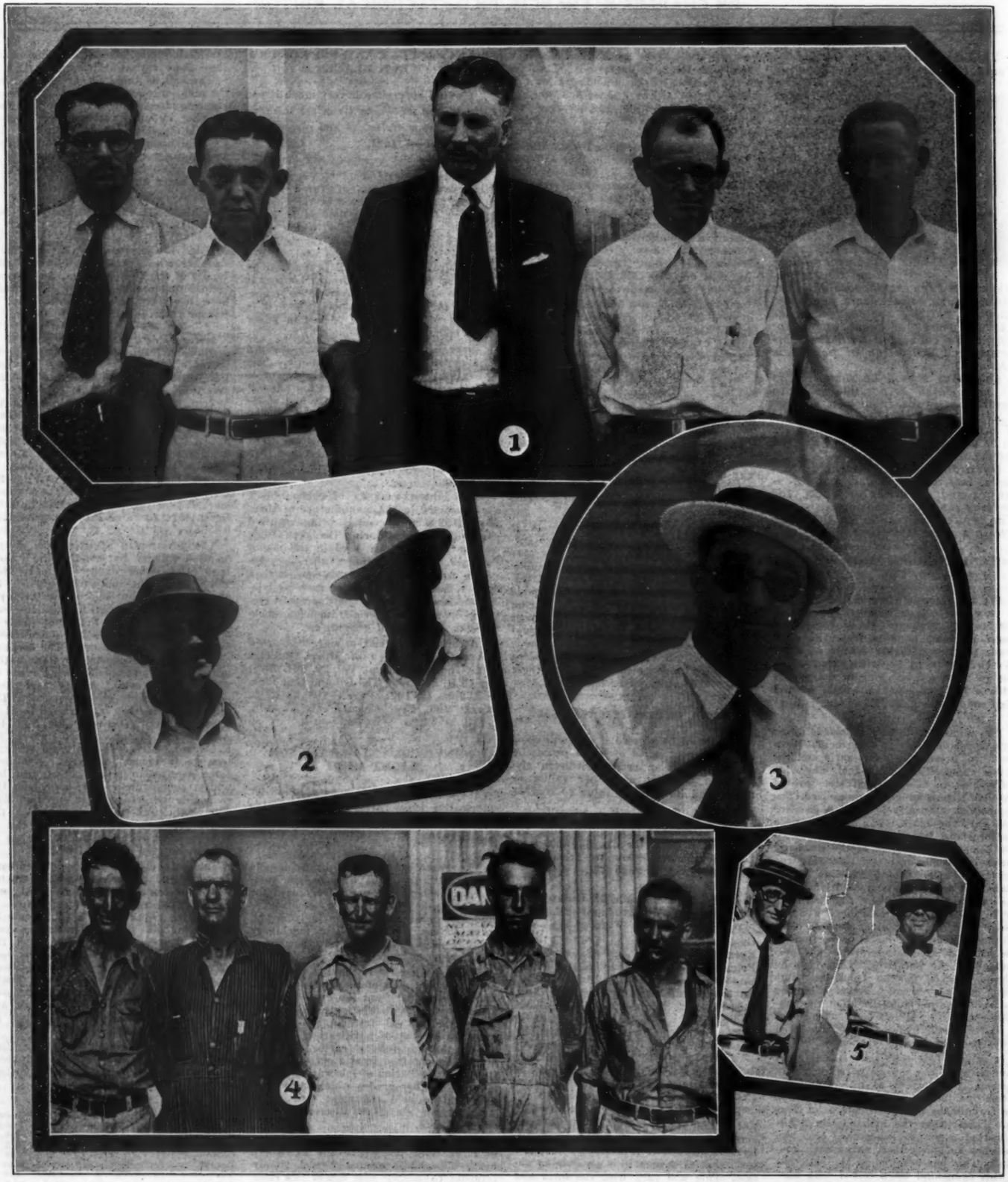
Two analyses are presented to illustrate the properties of commercial kerosene, high and low gravity for Mid-Continent oil.

QUALITY OF KEROSENE

	High	Low
Gravity, A.P.I.	43.5	40.5
Flash, °F.	158	190
Fire	184	212
Color	25	20
Doctor	sweet	sour
Viscosity	346	450
Lamp test	good	bad
Sulphur	0.021	0.06

Directions for making the tests usually made on kerosene may be found in Technical Paper 323B of the U. S. Bureau of Mines, obtainable through the superintendent of documents, Washington, D. C., for 15 cents.

Active Oil Men As They Faced the Journal's Cameras



1—L. F. Brand, shop foreman, E. W. Rening, field man, C. C. Richards, water treating engineer, T. R. Riley, assistant sales manager, and M. C. Owens, engineer, American Iron & Machine Works Company, Oklahoma City, Okla. 2—E. F. Griswold, president, and Guy Whatley, traffic manager, Central Refining Company, Henderson, Tex. 3—Guy O. Danielson, secretary-treasurer, Brauer Machine & Supply Company, Oklahoma City, Okla. 4—Ed Manley, roustabout, W. M. Rosell, engineer, J. C. Durgan, stillman, M. J. Atterbury, oiler, and George Emick, boiler man, Sinclair Oil & Gas Company, Garber Okla. 5—L. M. McKinney, superintendent, Republic Oil Refining Company's refinery at Texas City, Tex.; and Col. R. B. Dunbar, National Supply Company engineer in charge of construction of the plant.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 40)

Duval Oil Corp.'s No. 5 Bishop Cattle Co., 1,615 ft. from W line, 330 ft. from S line of N½ of Sur. 135..Location.

COLE FIELD—DUVAL COUNTY

Cole Petroleum Co.'s No. 70 Benavides.....Making location.

CAMP POOL—GUADALUPE COUNTY

Humble Oil & Refining Co.'s No. 1-C Sue Denman, 450 ft. from S line, 150 ft. from W line of lease off-setting Camp's discovery well.....T. D. 2,220 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright.....T. D. 5,400 ft.; standing.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim .....T. D. 4,810 ft.; shut down.

TAYLOR FIELD—MEDINA COUNTY

Medina Oil & Refining Co.'s No. 2 R. T. Taylor, 1,700 ft. from N line, 1,050 ft. from E line of Bruchet Sur. No. 135 .....Location.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin.....T. D. 2,825 ft.; drlg.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell .....T. D. 4,265 ft.; drlg.
Neal-Milton and Kepley Pet. Co.'s No. 1 J. N. Roark, 200 ft. to S line, 200 ft. to E line of 106-ac. tract...T. D. 4,471 ft.; drlg.
Saxet Oil Co.'s No. 1 McCampbell, 600 ft. from N and 1,900 ft. to W lines of tract .....T. D. 2,375 ft.; drlg.
Southern Drilling Co.'s No. 1 Alexander.....Making location.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 Benavides, 660 ft. from S line, 150 ft. from E line of Sur. 683.....Location.

COLE POOL—WEBB COUNTY

French Oil Corp.'s No. 4 R. Benavides, 1,945 ft. from N line, 150 ft. from W line of Sur. 659.....Rigging up.
Magnolia Petroleum Co.'s No. 5 A. Benavides, 1,945 ft. from N line, 150 ft. from E line of Sur. 660.....Drlg. 410 ft.
O. W. Killam's No. 20 Bruni, 1,420 ft. from NE line, 175 ft. from NW line of Sec. 9 of Ariape grant.....Location.

CHAPMAN POOL—WILLIAMSON COUNTY

Westbrook Oil Corp.'s No. 3-A Lawrence, 150 ft. from S and E lines of tract in S. Miller Sur.....Drlg. 2,300 ft.

KILLAM-CUELLAR FIELD—ZAPATA COUNTY

O. W. Killam's No. 44-B Cuellar, in Sur. 277.....T. D. 1,552 ft.; complete, 100 bbls.
O. W. Killam's No. 28-A Cuellar, in Sur. 277.....T. D. 1,450 ft.; drlg.
O. W. Killam's No. 29-A Cuellar, in Sur. 277.....Location.

ESCOBAS POOL—ZAPATA COUNTY

E. K. Bateman's No. 1 M. Garza, in Comitas grant.....Making survey.
Trevino Oil Corp.'s No. 10 Trevino, in Sur. 412.....T. D. 1,215 ft.; complete, 35 bbls.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

Ingersoll-Miller's No. 2 Carruth, 3,900 ft. S, 2,500 ft. W of NE cor. of tract in Francisco Bolen Sur.....T. D. 480 ft.; standing.
Moore-Jaurer's No. 1 Ellison, 2,916 ft. from E line, 1,500 ft. from S line of T. York Sur.....T. D. 2,170 ft.; sidetracking.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur.....T. D. 71 ft.; set surface csg.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio .....T. D. 865 ft.; standing.
Tri-State Oil Co.'s No. 1 E. B. Carruth, 2,500 ft. from S line, 2,560 ft. from E line of tract in F. Bolen Sur..T. D. 770 ft.; set 10-in. csg.

CALDWELL COUNTY

Ralph R. Lewis' No. 1 Keith McGee, 600 ft. from E and S lines of tract in J. Pinchback Sur.....T. D. 50 ft.; laying water line.
Mills et al's No. 1 McMahon, 275 ft. SW line, 75 ft. SE line of tract, J. Pinchback Sur.....T. D. 2,502 ft.; abnd.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur.....T. D. 722 ft.; standing.

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur.....Rigged up; standing.

DUVAL COUNTY

Camp and Southern Crude's No. 2 Hubbard, 990 ft. from N line, 330 ft. from W line of B.S.&F. Sur. No. 73 .....T. D. 2,000 ft.; drlg.
L. E. Lockhart's No. 1 Sutherland, 330 ft. from N and W lines of Sur. 511.....T. D. 2,720 ft.; abnd.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 33, Mesquite grant .....T. D. 1,712 ft.; standing.
Frank Gravis' No. 1 Shallert, Sur. No. 255.....T. D. 1,020 ft.; shut down.
South Texas Production Co.'s No. 1 Benavides.....Rigging up.

FRIO COUNTY

A. H. Wray's No. 1 Roche, 330 ft. from N and W lines of NW SE, Sec. 123, A. Hutzler Sur.....T. D. 2,220 ft.; waiting for blow-out preventer.

GUADALUPE COUNTY

Bolling et al's No. 1 J. E. Lennie, 850 ft. from E line, 1,050 ft. from S line of farm in V. Cortario Survey..Rigging up.
Harry Bruner's No. 2 Jim Sherrill, 330 ft. from NW and SW lines of tract in George Allen League.....T. D. 180 ft.; standing.
McGarrity et al's No. 1 A. Wesch, Jr., 150 ft. to N and E lines of farm, H. M. Thompson Sur.....T. D. 1,200 ft.; standing.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. .....T. D. 1,745 ft.; shut down.
Linne et al's No. 1 J. E. Linne, center 263-ac. tract in V. Cortario Sur.....T. D. 1,570 ft.; abnd.

GOLIAD COUNTY

Camp and Stanolind's No. 2 Pettus, 1,589 ft. N, 63 degrees 46½ minutes W of No. 1 .....Moving in.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur.....T. D. 930 ft.; standing.

JIM HOGG COUNTY

Cole Petroleum Co.'s (Peterman-Minahan) No. 1 Palacious, 450 ft. from W line, 150 ft. from N line of Blk. 14, Sur. 231.....T. D. 1,360 ft.; resuming drlg.

JIM WELLS COUNTY

Stanolind Oil & Gas Co.'s No. 1 N. A. Hoffman, 6,800 ft. from S line, 10,000 ft. from W line of most easterly NE cor. of 7,000-ac. ranch in La Trinidad Sur.....T. D. 514 ft.; set surface csg.

KARNES COUNTY

V. F. Neuhaus' No. 1 Russell, 150 ft. from E line of tract, 150 ft. N of highway, Carlos Martinez Sur.....Unable to get water; moved off.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 3,804 ft. from N line, 1,506 ft. from W line of W. Avery Sur.....T. D. 1,245 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale .....T. D. 2,708 ft.; drlg.
Sitton et al's No. 1 Garvin, C. of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia .....T. D. 1,482 ft.; shut down.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county .....T. D. 50 ft.; shut down.
Sartain's No. 1 Lawhon, 30 ft. SE of Perkins' No. 1 Lawhon; taken over at 281 ft.....T. D. 575 ft.; no report.

KERR COUNTY

Herbert Oil Co.'s No. 1 J. D. Witt, 1,320 ft. N line, 1,320 ft. W line of Sec. 1,923, W. H. Hamilton Sur....T. D. 200 ft.; standing.
Evans & Gant's No. 1 Seiker-Mears, C.C.S.D.&N.G.R.G. Sur. No. 1,605.....T. D. 4,031 ft.; shut down.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 .....T. D. 1,312 ft.; standing.
Evans & Gant's No. 1 Love in J. Martinez Sur. No. 1,594, 1,320 ft. from W line of survey and 660 ft. S of S line of Sur. No. 1,597.....T. D. 4,060 ft.; temp. abnd.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 .....T. D. 2,678 ft.; drlg.

LASALLE COUNTY

Buckley Ranch Oil & Gas Co.'s No. 1 Buckley, 200 ft. from S line, 330 ft. from W line of Sur. No. 37.....T. D. 206 ft.; set surface csg.

LIVE OAK COUNTY

Henderson Coquat's No. 1 Hewitt.....T. D. 400 ft.; standing.

LEE COUNTY

A. H. Wheeler and associates' No. 1 Fee, Blk. 47, H. Donohue Sur. .....T. D. 3,385 ft.; fishing.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur.....T. D. 2,300 ft.; shut down.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera School Land.....T. D. 2,284 ft.; drlg.

McMULLEN COUNTY

Whall, Scherer et al's No. 1 Shiner, Henry Brewer Sur....T. D. 2,008 ft.; shut down.
A. E. Adams' No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur.....T. D. 700 ft.; drlg.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113.....T. D. 922 ft.; twisted off drill stem; fishing.
Genard Bros.' No. 1 L. Crawford, 150 ft. to N and W lines of tract in J. Keppler Sur. No. 478.....T. D. 1,950 ft.; drlg.
J. H. Hickey's No. 1 Jungman, at N end Chicon Lake....T. D. 650 ft.; shut down.
Star Pet. Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20...T. D. 825 ft.; shut down.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 E. Lawson, 560 ft. from NE and 270 ft. from SE lines of farm in Fernando Rodriguez Sur., near Cause.....T. D. 1,960 ft.; drlg.
H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tract in B. Wickson Sur.....T. D. 1,295 ft.; shut down.
Nowlen's No. 1 Beard, 1,350 ft. from SE line, 450 ft. from SW line of farm, in J. F. Guthrie Sur., 4 miles S Thorndale .....T. D. 1,900 ft.; drlg.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur.....T. D. 4,439 ft.; drlg.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Chas. E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur.....T. D. 4,765 ft.; testing.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW, Sec. 175 .....T. D. 2,530 ft.; hauling in csg.

SAN PATRICIO COUNTY

Jacob, Buzzini, Pickett's No. 2 Baldwin, three-fourths mile from S and W lines of tract.....T. D. 3,810 ft.; abnd.
Welder Oil Corp.'s No. 2 Welder, 150 ft. E of C of W line of 100-ac. tract.....T. D. 3,654 ft.; tested 1,000 lbs. in 4 minutes; coring.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur.....Spudded in.
Fritz Fuchs' No. 1 L. Ballerstedt, 450 ft. from N line, 750 ft. from E line of tract in Amos Alexander Sur...T. D. 1,200 ft.; drlg.
Ray & Henze's No. 1 Hatech, in C of tract in S. Hamilton Sur. .....T. D. 360 ft.; drlg.
Waldron et al's No. 1 T. Cook, 900 ft. from NW line, 3,500 ft. from SW line of D. H. Minor Sur.....T. D. 1,200 ft.; resumed drlg.

WEBB COUNTY

Winfield Killam No. 1 Killam, Block 18, Survey 1,618 near Reiser .....T.D. 1,470 ft.; drlg.
Cole Pet. Co.'s No. 4 Benavides, Sur. No. 1,613.....T. D. 4,050 ft.; drlg.
Eugene Garner, Jr.'s No. 1 Billings, 411 ft. E line, 956 ft. N line of NW NE, Sur. 71.....Building derrick.
O. W. Killam's No. 2 Bruni, S of Los Ojuelos.....T. D. 1,632 ft.; drlg.
South Texas Production Co.'s No. 1-B Bruni, 660 ft. from NW and SW lines of Sur. No. 127.....T. D. 2,725 ft.; drlg.

WILLIAMSON COUNTY

Citizens Oil Development Co.'s No. 2 Forewood, 1,200 ft. to NE line, 1,420 ft. to SE line of farm and survey in A. S. Fisher Sur.....T. D. 1,586 ft.; abnd. in sulphur water.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown.....T. D. 1,325 ft.; fishing.
H. Fritz' No. 2 Fee, 35 ft. N of No. 1 Fee.....T. D. 930 ft.; drilling.
McLean's No. 1 R. C. Miller, 300 ft. from S line, 150 ft. from W line of farm in Manlove Sur.....T. D. 1,670 ft.; drlg.
R. S. Wilson's No. 1 Speckels, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland .....Shut down 875 ft.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur.....T. D. 1,340 ft.; changing rigs.

ZAPATA COUNTY

F. H. Etheridge's No. 1 Henne-Winch, in Sur. No. 286...T. D. 1,679 ft.; tested salt water.
H. L. Sargent's No. 1 Gutierrez, 922 ft. from W line, 472 ft. from S line of Blk. 5, Porcion 10, in Borrego grant .....Rigged up and shut down.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur.....Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant .....T. D. 1,525 ft.; standing.
National Oil Co.'s No. 1 Zapata Trust estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 .....T. D. 600 ft.; standing.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant.....T. D. 1,320 ft.; standing.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 39)

United Gas Public Service Co.'s No. 5 Earle, Sec. 25-17-5e, 1,320 ft S and E, NW cor. .....Derrick.
United Gas Public Service Co.'s No. 1 Faust, Sec. 13-17-5e, 320 ft. W, 600 ft. N, SE cor. .....Derrick.
United Gas Public Service Co.'s No. 1-B La. State 2,354 ft. E, 1,922 ft. N, SW cor., Sec. 32-17-6e ....Set 6-in. 2,300 ft.
United Gas Public Service Co.'s No. 1 C. H. Pipes, 2,447 ft. S, 178 ft. E, NW cor. SW, Sec. 35-17-6e ....Set 6-in. 2,300 ft.

SABINE PARISH—ZWOLLE

Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12 .....W.O.S.R. 2,548 ft.
W. M. Coates' No. 1 Bowman-Hicks, 330 ft. S and W, of C, Sec. 2-7-12 .....W.O.S.R. 2,441 ft.
W. M. Coates' No. 1-B Sabine Lbr. Co., 150 ft. N and E, SW cor. NW NW, Sec. 1-7-12 .....Began Sept. 17; set 10-in. 100 ft; drlg. 750 ft.
Crescent Drilling Co.'s No. 1 Byrd, Sec. 12-7-11 .....Rigging up.
Hawkins et al's No. 1 Moran, Sec. 1-7-11 .....400 ft. oil in hole 2,620 ft.; W.O. S.R.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12 .....S.D.W.O. 2,532 ft.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 .....W.O.S.R. 2,609 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 .....S.D. 1,800 ft.
Lanier & Dyer's No. 1 Barthold, 335 ft. N, 525 ft. E, SW cor. SE NE, Sec. 35-8-12 .....Tested dry, W.O. 3,521 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 .....S.D. 1,606 ft.
Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-13 .....Testing 2,675 ft.
Loring Oil Co.'s No. 19 Bowman-Hicks, 1,475 ft. W, 75 ft. S, NE cor. SW NE, Sec. 16-7-12 .....Began Sept. 18; set 15½-in. 101

ft; drlg. 400 ft.
Lyons & Neely's No. 3 Byrd, Sec. 1-7-11 ..... Rigging up.
Lyons & Neely's No. 1 Duggan, NW SE, Sec. 14-7-11 .. Location abd.
L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11 ..... S.D. 400 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D. 88 ft.
Pelican Nat. Gas Co.'s No. 10 La. Long Leaf Lbr. Co., 105 ft. S, 185 ft. W, NE cor. NE NE, Sec. 10-7-11 .. W.O.S.R. 2,387 ft.
H. W. Perritt's No. 5 Bowman-Hicks, 330 ft. S, 410 ft. E, NW cor. SW SW, Sec. 2-7-12 ..... Drlg. 1,975 ft.
Eddie Self's No. 2 Jacob, Sec. 1-7-11 ..... Derrick.
The Texas Co.'s No. 1 L. C. DeLatin, 1,120 ft. W, 200 ft. N, SE cor., Sec. 3-7-11 ..... Testing 2,625 ft.

ARKANSAS

UNION COUNTY—EL DORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... Coring 5,639 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... Arranging to resume drlg.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1 H. Norman, 330 ft. N and E, SW cor. SE NE, Sec. 3-18-13 ..... Set 6⅝-in. 3,560 ft. T.D. 3,583 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, Jno. Palmer Sur. .... S.D. 3,664 ft.
Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... S.D. 1,555 ft.
Natural Gas Production Co.'s No. 8 Floyd, 50 ft. S and 100 ft. W from No. 1 Floyd, Ben C. Jordan Sur. ..... Location.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. .. Location.
Southwestern O. & G. Co.'s No. 1 E. R. Vinson, 3,005 ft. S, 1,001 ft. W, NE cor. C. T. Anderson Sur. ... S.D. 2,650 ft.

MISSISSIPPI

HINDS COUNTY

Jackson O. & G. Corp.'s No. 3 Mayes, Sec. 2-5n-1e, 30 ft. N and 60 ft. W of SE cor. NE NW ..... Drlg. 1,330 ft.
Love Petroleum Co.'s No. 1 Federal Compress & Warehouse Co., Sec. 15-5n-1e, 662 ft. S and 2,120 ft. E, NW cor. ..... Rigging up.

RANKIN COUNTY

James Alexander, tr.'s No. 1 Wright Cast Stone Co., 300 ft. S, 1,460 ft. NE cor. NE NW, Sec. 13-5n-1e ... Derrick.
Cummins & Montgomery's No. 1 Ivey, Sec. 13-5n-1e, NE Lot 10 of Block D, E. Jackson Place, 1st addition ..... Derrick pattern.
J. E. Grandstaff et al's No. 1 Burford, 2,210 ft. E, 800 ft. N, SW cor., Sec. 11-5n-1e ..... Set 6-in. 2,413 ft.
J. E. Grandstaff et al's No. 1 East, Sec. 12-5n-1e, 1,180 ft. W and 515 ft. N, SE SW ..... Derrick.
Orr's No. 1 Casey, Sec. 12-5n-1e, 540 ft. E and 1,920 ft S, NW cor. SW ..... Derrick pattern.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 39)

Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16 ..... Tested dry 1,965 ft., W.O.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13 .... S.D. 1,266 ft.

LA SALLE PARISH

Gulf Ref. Co.'s No. 1 Tremont Lbr. Co., 668 ft. N, 632 ft. E, SW cor., Sec. 10-9n-1e ..... Drlg. 3,134 ft.

NATCHITOCHES PARISH

Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 ... S.D. 1,513 ft.
Mid-West Production Co., Inc.'s No. 1 H. Brown, Sec. 34-11-10, 300 ft. W, 330 ft. S, NE cor. SE ..... Derrick.
C. M. Talley et al's No. 1 C. M. Talley, 1,950 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... Tested dry; S.D. 1,380 ft.

OUACHITA PARISH

Wilson & Mitchell No. 1 Williams, Sec. 5-16-1e, 330 ft. E, 340 ft S, NW cor. SW SE ..... Location.

RAPIDES PARISH

Pelican Nat. Gas Co.'s No. 1 Long Bell Lbr. Co., 330 ft. N and E, SW cor., Sec. 3-1n-3w ..... Dry and abnd. 3,588 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11 ..... Spudded in; S.D. 50 ft.
Mack Jourden Co.'s No. 1 Lockett, 4,085 ft. S, 1,030 ft. E, NW cor. SW, Sec. 29, in Sec. 32-12-10 ..... S.D. 2,550 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.
National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... Sidetracking 120 ft., D.S. 2,515 ft.
Richland Operating Co.'s No. 1 Baremore, 720 ft. S, 950 ft. E, NW cor., Sec. 19-16n-7e ..... Small S.G.; S.W. and abd. 2,450 ft.
Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 .. Location.

SABINE PARISH

W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Location.
W. M. Coates' No. 1 Towery, NE cor. SE SW, Sec. 1-7-13 .. Set 6-in. 2,132 ft.
Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11 ..... S.D. 105 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 300 ft .W, NE cor. NW NW, Sec. 10-8-13 ..... Drlg. 3,673 ft.
R. L. Gay, tr.'s No. 10 Bowman-Hicks, 330 ft. S. and E, NW cor. SW SW, Sec. 18-7-13 ..... Rigging up.
Langbridge Oil Co.'s No. 1 Stephens, 330 ft. N and E, SW cor. SE NE, Sec. 17-9-11 ..... S.D.; W.O. 3,626 ft.
T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... Began Sept. 18; set 10-in. 40 ft.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-8-13 ... Tested dry 1,605 ft; W.O.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. for wtr. 1,200 ft.

TENSAS PARISH

U. A. Duvall et al's No. 1 Martin Jacob, 150 ft. S, 150 ft. W, NE cor., Sec. 1-14-11e ..... Drlg. 2,170 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-13 ..... S.D. 3,545 ft.

UNION PARISH

Dan Brooks' No. 1 Odus Douglas, 330 ft. S and E, NW cor. NE SW, Sec. 9-22-3 ..... S.D. 3,509 ft.

VERNON PARISH

Exchange Petroleum Co.'s No. 1 White & Grandin, Sec. 39-3n-7w, 1,980 ft. E, 1,430 ft. N, SW cor. Sec. ..... Drlg. 750 ft.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 21-23-3 ..... Set 6⅝-in. 3,560 ft; T.D. 3,583 ft.

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenwelder, Rhea & Kitchen, Sec. 13-17-22 ..... S.D. 804 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-3 ..... S.D. 1,352 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w .... Rigged up and S.D.

CLEBURNE COUNTY

(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,749 ft.

CRAWFORD COUNTY

Ozark Nat. Gas. Co.'s No. 1 Hammond, C SE SE, Sec. 29-10-29 ..... Began Sept. 18; drlg. 110 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... S.D.; W.O. 2,869 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 300 ft. S, 200 ft. E, NW cor. NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.
Zepp O. & G. Co.'s No. 3 Hillman, 450 ft. E, 340 ft. S, NW cor. SE NE, Sec. 10-20-13 ..... Drlg. hard sandy gumbo 2,375 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... Fishing D.S. 2,800 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-29 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W. O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Bolin & McLeon's No. 1 L. D. Nealy, 150 ft. S, 150 ft. W, NE cor. SE SW, Sec. 25-16-15 ..... Set 6-in. 3,032 ft; testing 2,036 ft.
Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17 ... S.D. 330 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D.; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... Arranging to set 8-in. to cut off wtr. 338 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D.; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D.; waiting on csg. 1,860 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 380 ft. E, SW cor. NE SW, Sec. 3-18-13 ..... 600 ft. fluid 30% S.W. in hole; T.A. 3,570 ft.
Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... Began Sept. 12; set 10-in. 42 ft; drlg. gumbo 700 ft.
Joe Modisette et al's No. 1 W. D. Webb, Sec. 6-18-13, NE cor. NW SE ..... Location.

WASHINGTON COUNTY

(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 24-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY

(Cable tools)

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Hindeman & Bell's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... Drlg. 3,240 ft.
Logan & Elliott's No. 1 Smith, 2,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... Drlg. lime 3,926 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. sticky shale 1,102 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

J. F. Morrisey's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... S.D. 3,670 ft.
Davis & Pigg's No. 1 Roy Brian, SW cor. Roy Bryan 38-ac. tr., Albert H. Latimer Sur. ..... S.D. 2,055 ft.
Everets Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S, and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... S.D. 3,932 ft.; waiting on D.S.
Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... S.D. 4,195 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
Olds & Smith's No. 1 Athony, 3,056 ft. W-E line, 856 ft. S-N line, J. C. Byers Sur. ..... Waiting on wtr. 3,075 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.
United North & South Co.'s No. 1-A Nickelberry, W. A. Irvin Sur., 300 ft. S and E, NW cor., Nickelberry 50-ac. tr. ..... Rigging up.

HARRISON COUNTY

Gholson et al's No. 1 Bivins Farm Co., on J. K. Bivins, Jr.'s 320-ac. tr., Thos. Toby Sur. ..... S.D. 3,085 ft.
Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 350 ft. from E line of 105-ac. tr., Findley Sur. ..... S.D. lime 2,970 ft.
O. H. Parkening's No. 1 T. J. Taylor, C, Blk. 32, W, H. Payne Sur. ..... S.D. 2,520 ft.
Ryan Consolidated Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur. ..... Derrick.
Thomas & Kinsey's No. 1 J. R. Watson, Thos. Iden Sur... Drlg. 1,250 ft.

MARION COUNTY

Gist, Claunch & Dodson's No. 1 Miller, 1,470 ft. E line, 725 ft. N line, SW cor. H. Fulgram H.R. Sur. ..... S.D. 300 ft.
Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 400 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur. .. Spudded and S.D.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D.; changing to heavy rig 550 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... S.D. 1,500 ft.; laying wtr. line.
United Gas Public Service Co.'s No. 11 Werner, 1,162 ft. N, 2,418 ft. W, SE cor. D. B. Lewis Sur. ..... Drlg. 3,379 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

SHELBY COUNTY

I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... S.D. 3,280 ft.
E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Reaming to bottom at 3,350 ft; T.D. 3,364 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ... S.D. 3,127 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. .... Drlg. 2,950 ft.
H. P. Glidden's No. 1 Pickering Lbr. Co., Jonas Harrison Sur., 300 ft. E of NW cor., 150 ft. S of N line at right angles Pickering 59-ac. tr. ..... T.A. 3,854 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E. SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft.

T. A. Martin's No. 1 J. B. Bush, S 8 degrees E, 2,000 ft. from NW cor. J. B. Bush's 77-ac. tr., thence E at right angles to said line 200 ft., Alfred Lindsey Sur. ..... Derrick.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... Drlg. sandy shale 3,123 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 396-ac. tr. ..... Arranging to set 8-in. 2,282 ft.
Geo. N. Pace's No. 1 E. H. Powers, western J. Timms Sur., 150 ft. E of W line, 200 ft. N of S line, Powers 126-ac. tr. ..... Derrick.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... S.D. waiting on csg. 405 ft.
Schultz et al's No. 1 Hughes, 150 ft. SW cor. Hughes' 110-ac. tr., J. Clay Sur. ..... Drlg. broken lime 4,250 ft.
A. D. Smith's No. 1 Y. D. Carroll-J. A. Parker Sur., 1,500 ft. N, 300 ft. W, SE cor. J. A. Carroll Sur. ..... Drlg. hard lime 3,242 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft.; waiting on D.S.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... Fishing for D.S. 3,457 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

Company, farm and location— Remarks:

ADAMS COUNTY

Ark.-La. P. L. Co.'s No. 1 Brandon Hall Farms, 201 ft. from W line, 390 ft. from S line, Lot 32, Brandon Subd., Sec. 61-18n-1w ..... Drlg. 2,744 ft.

CLARKE COUNTY

Gulf Ref. Co.'s No. 1-A Long Bell Lbr. Co., C SW SW, Sec. 10-2n-16w ..... Drlg. 2,950 ft.

HINDS COUNTY

Hilgard Gas Co.'s No. 1 The Mississippi Co., Sec. 4-5n-1e, 1,300 ft. E and 450 ft. N of cen of section ..... Rigging up.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... S.D. 20 ft.; W.O.
F. E. Stewart et al's No. 1 Miss. Cotton Seed Products Co., Sec. 4-5n-1e, 320 ft. S and 440 ft. W of NE cor. SE ..... Derrick.

HUMPHREYS COUNTY

Danciger O. & G. Co.'s No. 1 Belgrade Lbr. Co., C NW, Sec. 29-14n-4w ..... Drlg. rock 1,884 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. 2,360 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 3,015 ft.
McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-19 .. Set 5 3/16-in. 3,420 ft.; T.D. 3,430 ft.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E of SW cor. SE, Sec. 25-6n-11e ..... Partly rigged up and S.D.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e .. Reaming to set 8-in. 1,605 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e ..... S.D. 405 ft.
Gulf Ref. Co.'s No. 1-A Hanna, Sec. 23-6n-1e ..... D.S. stuck 2,745 ft.; T.D. 2,815 ft.
Muse & Muse's No. 1 Webb, center Lot 32, Blk. B, East Jackson Pl., Jackson City Subd., Sec. 12-5-1 ... Completed; estimated 35,000,000 ft; gas 2,396 ft.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Meredith et al's No. 1 Allen, 470 ft. W, 295 ft. N, SE cor. SW, Sec. 12-5n-1e ..... Set 6⅝-in. at 2,371 ft.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e.. S.D. 900 ft.
Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e ..... S.D. 2,495 ft.
United Gas Public Service Co.'s No. 1-A McLaurin, 3,950 ft. E, 660 ft. S, NW cor. SW, Sec. 8-5n-2e ..... Set 9-in. 854 ft.
Willis & Culley's No. 1 Applewhite & Holden, 10 ft. N, 60 ft. E, SW cor., Sec. 12-5n-1e ..... Rigging up.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-5-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.
United Gas Public Service Co.'s No. 1 Tchula Co-Operative Store, 1,980 ft. W, 660 ft. N, SE cor. SE, Sec. 33-15n-3e ..... Drlg. 450 ft.

WEBSTER COUNTY

P. J. McAlpine's No. 1 Henly (was Cumberland Oil Co.'s No. 1 Henly), SE NW, Sec. 15-21n-11e ..... S.D. 1,800 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14 ..... Drlg. red shale 3,985 ft.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 37)

Yount Lee Oil Co.'s No. 23 Cade, N. Fitzsimmons Sur., 300 ft. S of No. 22 ..... Location.

DAMON MOUND—BRAZORIA COUNTY

Layne et al's No. 8 Wisdom, 155 ft. from NW line and 150 ft. from NE line, Lot 52, Blk. D, Wisdom Subd., A. Darst Sur. ..... No report; previously reported drlg. 2,384 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 30 Moore, Mark Smith Sur., 400 ft. N and 600 ft. W of No. 29 ..... T.D. 930 ft.; plugged to 600 ft. to straighten hole.

ORANGE—ORANGE COUNTY

Jefferson Prod. Co.'s No. 1 Bland ..... Sandy shale 2,980 ft.; drill stem stuck.

LOCKWOOD—FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 2-A Lockwood & Sharp (D.D.) ..... Drlg. shale 4,563 ft.
Cullen & West and Gulf Prod. Co.'s No. 3-A. Lockwood & Sharp, J. Rabb Sur., 600 ft. E of No. 2-A.. Drlg. shale and lime 3,060 ft.
Cullen & West and Gulf Prod. Co.'s No. 4-A Lockwood & Sharp, J. Rabb Sur., 550 ft. W of No. 2-A ..... Derrick.
Cullen & West and Gulf Prod. Co.'s No. 2 H. P. Lockwood, J. Rabb Sur., 300 ft. N and 900 ft. W out of SW cor. 383-acre tract ..... Location.
Cullen & West and Gulf Prod. Co.'s No. 2 A. P. George, J. Rabb Sur., 300 ft. S and 905 ft. E out of NW cor. 200-acre tract ..... Drlg. sand and shale 4,301 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 6 Lost Lake, 2,381 ft. W and 289 ft. S of No. 5 in Lost Lake ..... Drlg. gumbo 1,373 ft.

NASH—FORT BEND COUNTY

Harrison & Abercrombie's No. 15 Nash, Thomas Alsbury S League, 450 ft. E and 75 ft. S of Rycade Oil Corp.'s No. 13 Nash ..... Drlg. 4,350 ft.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Gulf Production Co.'s No. 4 McFaddin, J. McFaddin Sur.. Drlg. gumbo 2,605 ft.
Humble Oil & Ref. Co.'s No. 8 Sterling, James McFaddin Sur., 150 ft. from N line and 1,650 ft. from E line of 512-acre tract ..... Drlg. hard sand 4,570 ft.

REFUGIO—REFUGIO COUNTY

Larco Gas Petroleum Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2.. Spudded.
Moody-Seagraves Prod. Co.'s No. 4 O'Connor, Refugio Town Tract, 150 ft. from N line and 1,282 ft. from W line of 60-acre tract ..... T.D. 6,477 ft.; trying to sidetrack screen.
L. L. Smith's No. 1 L. M. Rogers (W.O.), C of Blk. 87, Refugio Townsite ..... T.D. 6,457 ft.; cmtd. 4½-in. csg. 5,300 ft.; set whipstock; standing.
United Prod. Corp.'s No. 6 O'Brien, 150 ft. from S line of tract, 350 ft. W of No. 3 ..... Oil sand 6,438-51 ft.; twisted off joint drill stem; S.D.; waiting orders.
United Prod. Corp.'s No. 4 M. F. Lambert, Wm. Hews and L. Brown Sur., 2,514.7 ft. NE along NW line from SE cor. lease and 330 ft. NW at right angles.... T.D. 5,925 ft.; sand 5,813-42 ft.; cmtd. 5½-in. csg. 5,812 ft.

SOUTH LOUISIANA FIELDS
LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 5-A Farquahar, 105 ft. S and 110 ft. E of NW cor. SW NE, Sec. 8-10s-9w ..... Trying to set 9⅝-in. csg. 6,455 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w ..... Drlg. hard sand 7,585 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 26 Watkins, 1,199 ft. N and 1,843 ft. W of SE cor. of Sec. 13-12s-10w ..... Drlg. rock 2,520 ft.
Calcasieu Oil Co.'s No. 3 Landry, Sec. 13-12s-10w, 139 ft. from N line of 11-acre tract and 300 ft. E of No. 1.. Drlg. rock 2,700 ft.
R. E. Seiss' No. 2 J. M. Vincent ..... Shut down 2,163 ft.
J. G. Sutton's No. 2 Irwin, 1,600 ft. W and 200 ft. N of SE cor. NE SE of Sec. 13-12s-10w ..... Spudded.
Yount Lee Oil Co.'s No. 43 State, 1,690 ft. W and 1,320 ft. N of SE cor. of Sec. 13-12s-10w ..... Location.

VINTON—CALCASIEU PARISH

Vinton Petroleum Co.'s No. 11 Matilda Gray, Sec. 33-10s-12w, 600 ft. from S line and 195 ft. from W line (D.D.) ..... T.D. 3,680 ft.; sidetracked to sand 3,600 ft.; comp. flowing 4,000 bbls. pipe line oil.

STARK—CALCASIEU PARISH

Gulf Refining Co.'s No. 28 Lutcher-Moore, Sec. 19-9s-12w.. Drlg. sand 982 ft.

MISCELLANEOUS WILDCATS
TEXAS

BRAZORIA COUNTY

United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peske Sur. ..... T.D. 1,594 ft. in gumbo; drill stem stuck.

BURLESON COUNTY

Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract ..... Sand 700 ft.; set 3 jts. 8-in. surface csg.
Marts et al's No. 1 W. H. Boyett, W. McWilliams Sur., 3,168 ft. N of N cor. of City National Bank 208-acre tract and 300 ft. SE of NW line of Boyett tract.. No report.
Mid-South Oil Co.'s No. 1 Duckworth (W.O.), E of Clay Station ..... T.D. 3,070 ft.; rig up to deepen.

FORT BEND COUNTY

Stone & Wyman's No. 1 Beard, E.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,892 ft. from NE line.... No report.

GRIMES COUNTY

Rianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., C of 110-acre tract ..... Drlg. shale and boulders 2,153 ft.

HARRIS COUNTY

Givens & Daybault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. ..... Drlg. shale and sand 2,097 ft.
Humble Oil & Ref. Co.'s No. 2 Irwin (D.D.), Mykawa, Wm. Lovett Sur. ..... Drlg. shale 4,969 ft.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. ..... Location.
J. P. Hunnicutt's No. 1 Haney, T. Pitching Sur,. 150 ft. out of NE cor. of Geo. E. Haney 730-acre tract ..... Drlg. hard, blue shale 3,883 ft.
Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. ..... Location.
Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74° ..... Shut down in gumbo 2,206 ft.

JACKSON COUNTY

Chicago-Gulf Oil Co.'s No. 9 Drushell, Edna F. Rodriguez Sur., 1,080 ft. N, 58° E No. 8 ..... Derrick.
Francitas Oil & Land Co.'s No. 1 Thrull, 3,260 ft. SW of N cor., P. Green Sur., 540 ft. SE of E bank Carancahua Creek ..... Derrick; standing; to drop from report.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 Nelson, Wm. Rice Sur., 550 ft. from N line and 50 ft. from E line of W½ of 1,071-ac. tract ..... Rig.
John I. Pipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 206-ac. tract ..... Derrick.

LIBERTY COUNTY

L. B. House's (I. R. Ingram) No. 1 C. T. Palmer, James Fenner Sur., 1,000 ft. from W line and 850 ft. from S line of tract ..... Shut down in shale and lime 2,716 ft.
Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; S.D.

MONTGOMERY COUNTY

Humble Oil & Ref. Co.'s No. 1 W. A. Penn, 750 ft. from N line and 900 ft. from E line of S. J. McFarland Sur. ..... Drlg. shale 1,728 ft.
Strake et al's No. 1 South Texas Dev. Co., 468 ft. in westerly direction along N line of Theo. Slade Sur. from SW cor. of A. McGowan Sur., and thence 750 ft. in southerly direction at right angles from said line in Slade Sur. ..... Drlg. sandy shale 2,926 ft.

NEWTON COUNTY

R. T. Briscoe's No. 1 R. C. Windham, A. L. Stewart Sur., 1,000 ft. E and 550 ft. N of SE cor. Asa Huffman tract ..... Sandy shale 1,200 ft.; dry and abandoned.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... T.D. 4,603 ft.; sidetracked 1,800-2,200 ft.; S.D.
Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Drlg. gumbo 1,710 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... S.D. 3,162 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Spudded.
Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract ..... S.D. 734 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. ..... Shut down 4,627 ft.
Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Ross Sur., thence 7,375 ft. W at right angles in John Keating Sur. ..... Drlg. salt water sand 3,314 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs ..... S.D. 750 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,255 ft.; cmtd. 6-in. csg. 1,218 ft.

Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 795, 1,500 varas from W line and 600 varas from N line ..... Fishing 5,025 ft.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line ... Heaving shale 5,044 ft.

The Texas Company's No. 3 McFaddin, S 15° W., 6,200 ft. and N 75° W 1,850 ft. out of NE cor. John M. Rine Sur. ..... Shale 4,279 ft.; trying to set 9⅝-in. csg.

United Prod. Corp.'s No. 5-A McFaddin, 4,350 ft. N along extended E line of C. L. Mann Sur., in Maria Traviesa Sur. ..... T.D. 3,828 ft.; cmtd. 7-in. (O.D.) csg. to test gas sand 3,754-59 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-ac. tract ..... Rig standing.

WASHINGTON COUNTY

Cord Oil Co.'s No. 1 Hahn, 500 ft. from S line and 1,852 ft. from W line of J. H. Alcorn Sur., Abst. 3.. No report.

Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. ..... Drlg. hard sand and pyrites 3,396 ft.

WHARTON COUNTY

Beard & Brumblow's (Shibe & Gray) No. 1 Brown (W.O.), S of El Campo ..... T.D. 2,814 ft.; rig up to deepen.

Bonds & Alexander's No. 1 Hahn, S.A.M.G. Sur., Sec. 13, 800 ft. W and 200 ft. N of NE cor. 152.1-ac. tract ..... Drlg. shale 1,667 ft.

W. H. Wallace et al's No. 1 Lee, 600 ft. S and 800 ft. W from NE cor., Sec. 18, G.H.&H. Sur. ..... No report.

SOUTH LOUISIANA

ASCENSION PARISH

McElroy Petroleum Co., 150 ft. S and 150 ft. W of NE cor., Sec. 29-10s-4e ..... Shut down 4,070 ft.

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... S.D. 875 ft.

I. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.

Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... S.D. 3,650 ft.

Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w ..... Rig.

Vacuum Oil Co.'s No. 1 Walt (D.D.), 225 ft. out of SE cor., Sec. 12-9s-7w ..... T.D. 6,979 ft.; sidetracking in gumbo 6,220 ft.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,130 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500-ft. S No. 1) ..... Sand showing oil 5,260 ft.; cmtd. 7-in. csg. to test.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 21 Lake Peigneur, Sec. 58-12s-5e, 300 ft. NW of No. 20 ..... Sulphur test.

Jefferson Lake Oil Co.'s No. 22 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 21 ..... Sulphur test.

Jefferson Lake Oil Co.'s No. 23 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 22 in line with No. 21.. Sulphur test.

IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle Grove-Wingfort, Bayou Choctaw, Sec. 52-9s-11e, 250 ft. W No. 1 Gray ..... Drlg. sand showing oil 2,476 ft.

Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Drlg.

Standard Oil Co.'s No. 7 Schwing, Bayou Blue, Sec. 74-9s-10w, N 45° W 1,800 ft. from No. 5 ..... Abandoned 1,350 ft.

LA FOURCHE PARISH

State Production Co.'s No. 1 Mrs. W. H. Stark, Chacahoula Dome, 1,921 ft. E and 1,340 ft. S of NW cor., Sec. 71-15s-15e ..... Sulphur test.

State Production Co.'s No. 1-B Mrs. W. H. Stark, Chacahoula Dome, 1,921 ft. E and 1,340 ft. S of NW cor., Sec. 71-15s-15e ..... Sulphur test.

PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 5 Cocarelli-Moran, Lake Grand Ecaille, 10,377 ft. N and 2,614 ft. W of NE cor. of Twp. 21s-26e ..... Location.

Humble O. & R. Co.'s No. 6 Cockrell-Moran, Lake Grand Ecaille, Twp. 21s-26e, 5,000 ft. E of Washington Sta. ..... Building derrick.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,450 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e ..... Reaming to set csg. 1,338 ft.

The Texas Company's No. 3 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 10 State, Lake Barre ..... Location.

The Texas Company's No. 11 State, Lake Barre ..... Rigging up.

The Texas Company's No. 12 State, Lake Barre ..... Location.

The Texas Company's No. 13 State, Lake Barre (W.O.)... T.D. 4,900 ft. in salt; sidetracked to oil sand 3,684 ft.; cmtd. 9⅝-in. csg. 3,670 ft.

The Texas Company's No. 14 State, Lake Barre ..... Location.

The Texas Company's No. 6 State-Lake Pelto (D.D.), 1,650 ft. N and 670 ft. W from SE cor. tract, Sec. 8-23s-18e ..... Drlg. cap rock 2,274 ft.

VERMILLON PARISH

Pure Oil Co.'s No. 2 Southwest Louisiana Land Co., 1,300 ft. E and 300 ft. S of NW cor. Sec. 4-12s-1w.. Drlg. sticky shale with streaks of sand 3,481 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. Shale and lime 2,050 ft.; waiting on 8¼-in. csg.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 35)

KINGMAN COUNTY

Skelly Oil Co.'s No. 1 Miles, NE cor., Sec. 30-27-10w..... 1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; shut down; estimated at 600 bbls. a day.

LINCOLN COUNTY

Buck et al's No. 1 Schuls, C SE NE SW, Sec. 19-11-8w... Rig on ground; abnd.

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE, Sec. 32-34-43w ..... T. D. 3,640 ft.; temp. abnd.

MORRIS COUNTY

Allender et al's No. 1 Wycoff, C SW SE, Sec. 5-17-7.... Shut down 105 ft.

Urschel et al's No. 1 Bersuch, NW SE NW, Sec. 16-17-7.. Machine.

Hankerson et al's No. 1 Cessman, SW SE, Sec. 24-16-9 .. Shut down 2,625 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW, Sec. 21-14-15..... Shut down 2,058 ft.

Fielder & Whiteside's No. 1 Hudleston, NE NW Sec. 30-16-17 ..... Drlg. 1,150 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor., Sec. 3-2-35w.. Drlg. 3,770 ft.

RICE COUNTY

Detrick & Langston's No. 1 Purcell, NW cor., Sec. 33-Cress et al's No. 1 Sharp, SE NE, Sec. 13-20-10w..... Show oil 3,107-15 ft.; Siliceous 3,330-36 ft.; estimated 1,500 bbls.; shut in.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW, Sec. 17-19-16w ..... Show of oil in Conglomerate 3,824-80 ft.; plugged back to 3,825-40 ft.; estimated 150 bbls.; shut down.

RUSSELL COUNTY

Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor., Sec. 6-13-12w ..... Shut down 3,374 ft.

Gilbreath et al's No. 1 Bratton, C NE, Sec. 33-11-13w.... Show oil 3,090-94 ft.; shut down 3,504 ft.; plugging back to 3,189 ft.; shot 20 qts., no show, abnd.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW, Sec. 20-13-4w ..... Fishing 3,710 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW, Sec. 27-7-26w..... Drlg. 3,130 ft.

STAFFORD COUNTY

Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE, Sec. 11-24-13w ..... Drlg. 3,250 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE, Sec. 10-33-39w... Shut down 5,521 ft.

SUMNER COUNTY

Tighe et al's No. 1 Thieson, C NW SE SE, Sec. 22-34-2... Shut down 2,395 ft.

Trees Oil Co. and Shell's No. 1 Springate, NE SE SW, Sec. 6-34-2 ..... Drlg. 2,214 ft.

Spencer et al's No. 1 Porter, NE SW, Sec. 12-33-3w..... Shut down 3,510 ft.

Otstot et al's No. 2 Marlow, C SE NW SE, Sec. 22-33-3w Drlg. 4,285 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3.... Shut down 1,720 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE, Sec. 24-2-2w.. Shut down 4,830 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor., Sec. 1-7-22w..... 5,000,000 ft. gas 1,455-65 ft.; T. D. 1,760 ft.

French's No. 1 Murphy, SW NW, Sec. 23-7-21w... ..... Shut down 1,645 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w ..... 20,000,000 ft. gas 5,350-5,400 ft.; T. D. 8,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE, Sec. 14-9-19... Shut down 650 ft.

Ault et al's No. 1 Hall, NW SW SW, Sec. 14-9-19..... Shut down 2,000 ft.

Ault et al's No. 1 Hall, SE NW, Sec. 25-9-19 ..... Shut down 200 ft.

Holden's No. 1 Phillips, SE cor., Sec. 3-9-18e..... Shut down 1,860 ft.

Marion Oil's No. 1 Sanders, NW NE NW, Sec. 10-9-18e... Shut down 2,387 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW, Sec. 15-5-11..... Shut down 1,645 ft.

KAY COUNTY

Lewis et al's No. 1 Harris, SE NW, Sec. 14-25-1..... Location.

Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE, Sec. 9-27-2 ..... Shut down 3,693 ft.

Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w..... Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE, Sec. 8-7-18w ..... Shut down 820 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE, Sec. 16-6-19 ..... Shut down 1,542 ft.

LINCOLN COUNTY

Hilton Phillip's No. 1 Phillips, SW NW Sec. 2-14-3..... Rig on ground.

Mote et al's No. 1 School Land, NW cor., Sec. 36-17-5.... Shut down 50 ft.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 ..... Drlg. 5,753 ft.

MURRAY COUNTY

Capitol Prod. Co.'s No. 1 Cutchall, SE NE, Sec. 6-1-2.... Cleaning out 1,938 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19 .. Shut down 1,011 ft.

OKFUSKEE COUNTY

Shepard et al's No. 1 Neveas, SE NW SW, Sec. 2-12-10... Shut down 3,638-90 ft.; Wilcox sand; hole full water.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor., Sec. 21-11-3w ..... Shut down 1,200 ft.

L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w ..... Shut down 5,515 ft.

J. F. Cuniff, trustee's No. 1 Church Land, NE NW SE, Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW, Sec. 6-20-5..... Shut down 1,950 ft.

Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5.... Rig.

PITTSBURG COUNTY

Tape Oil Co.'s No. 1 Fulton, SE, Sec. 34-7-14 ..... Shut down 1,200 ft.

J. Morrison's No. 1 Fowler, NE SE, Sec. 13-7-17..... Rig.

C. Kennedy's No. 1 Travis, C SW NE, Sec. 15-7-14..... Rig.

C. Canady's No. 1 Jones, NW cor., Sec. 14-8-14..... Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW, Sec. 23-12-24w..... Shut down 5,150 ft.

L. C. Hivick's No. 1 Davis, C NW NE, Sec. 4-11-26w..... Shut down 3,275 ft.

SEQUOYAH COUNTY

Braman Oil Co.'s No. 1 Unknown, C NW SW Sec. 29-12-23 ..... Drlg. 200 ft.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor., Sec. 29-8-19w ..... Drlg. 2,388 ft.

Burns & Prince's No. 1 Deck, SW cor., Sec. 21-8-18..... Drlg. 1,140 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW, Sec. 11-1-1E Shut down 4,750 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE SE, Sec. 18-3s-10 ..... Shut down 1,530 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW, Sec. 7-7-10.. T. D. 650 ft.

Bush et al's No. 1 Commerce Trust, NE cor., Sec. 35-6s-9 ..... T. D. 740 ft.; plugged back to 450-80 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE, Sec. 18-4s-8w..... Location.

JOHNSTON COUNTY

Gilbreath's No. 1 Readon, SE NW NE NE Sec. 17-4s-5 .. Drlg. 220 ft.

LOVE COUNTY

Autrey et al's No. 2 Cross, CWL SE NE, Sec. 27-6s-2..... Show oil and gas 970-72 ft. and 1,324-34 ft.; shut down; T. D. 1,634 ft.

MARSHALL COUNTY

Dixson's No. 1 McDuffel, SW SE, Sec. 3-7s-6..... Drlg. 772 ft.

Taliaferro et al's No. 1 fee, NW SE Sec. NW, Sec. 34-5s-5 ..... Shut down 530 ft.

D. H. Curry's No. 1 Ward, NE SE SW, Sec. 15-5s-6..... Abnd. 2,310 ft.

McCURTAIN COUNTY

The Oil Journal's No. 1 Parks, C NE SW, Sec. 17-8s-23.. Drlg. 365 ft.

Stewart's No. 1 Patterson, C SE SE, Sec. 7-6s-24..... Shut down 975 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE, Sec. 32-3s-15..... Shut down 840 ft.

Whitehead et al's No. 1 Messer, SE SW SW, Sec. 35-3s-18 ..... Location.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE, Sec. 15-3s-5w..... Sand 990-1,004 ft.; show oil.

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CANADIAN FIELDS

(Continued from Page 46)

the government pursuant to Section 4 of the Oil and Gas Well Act of 1931, beg to report that it approves of the general principles of the plan for co-operative production and compensation for restriction of output prepared by the technical committee providing for: (1) The pooling of all production in the Turner Valley in preference to individual operations under arbitrary proration; (2) compensation in part for restriction of naphtha production to producers not sharing in present gas revenue.

"The manifest benefits of the plan are the reduction of operating expense and the increase of naphtha output for a given flow of gas as compared to arbitrary proration, also the increased life of the field.

"The proposed form of agreement has been reviewed in a general way and is commended to the parties concerned for their serious consideration as the basis for a contract to be worked out mutually by them. We consider it far more favorable to their interests than any form of arbitrary proration. We recommend to the provincial government that immediate steps be taken to bring this proposed agreement to the attention of the interested parties and urge their co-operation in making it effective."

Independent operators are urging the increasing of the restricted flow of 100,000,000 feet a day to 200,000,000 feet or more. They claim the field should be placed on a 25 per cent basis which on the June open flow, would give a maximum of 212,000,000 feet a day. Frank P. Fisher, government expert, and R. Van A. Mills, representing the independent operators, are estimating the probable difference in the life of the field if the minimum is increased to this figure.

South Turner Valley

Production of the Turner Valley Field is likely to be materially increased by six additional wells still drilling in the south field. Of these, five are being drilled by independents, the sixth being Sterling Pacific's No. 2 of the Imperial string, in LSD 10, Section 33-18-2w5.

In the Merland Sterling Pacific area, in the far south end, Mar-Jon-Freehold's No. 1, LSD 9, Section 28-18-2w5, is still drilling in the upper horizons at 1,710 feet. Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is making new hole at 2,160 feet. Union Drilling Co. is handling both tests.

Further north, in the Mercury area, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is drilling at 4,400 feet and getting close to the Home sands. This test offsets Mercury's No. 1 producer, being 1,200 feet to the south, and about 1,600 feet south of Southern Lowery's No. 3 producer, recently brought in. Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, is drilling close to the Madison lime at 4,929 feet, and should be the next South Turner Valley producer brought in. Miracle's No. 3, LSD 11, Section 4-19-2w5, is drilling at 4,254 feet.

Central Turner Valley

In Central Turner Valley, McLeod Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, is deepening in the lime at 5,126 feet with some increase in wet gas flow.

Border Gas Strike

On the Canadian end of the Reserve Dome, east of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-0w4, is reported to have encountered a lower gas sand at 2,180 feet. The aggregate flow from this well has been estimated as high as 12,000,000 feet a day, the main production coming from the Bow Island sand around 1,890 feet; but actual measurement, following the recent strike, shows between 6,000,000 and 7,000,000 feet a day. The test is being drilled deeper, having not yet reached the potential oil horizon.

Hudson's Bay Test

On the Keho Lake structure, southern Alberta, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is drilling in the Cretaceous formation at 4,675 feet, and carrying down casing behind the tools, as a precaution against further caving.

Border Tests

In the Milk River area, Commonwealth Petroleums' No. 1, LSD 9, Section 9-3-15w4, is drilling in the Devonian lime close to 5,000 feet. Oil impregnation is indicated, but the oil does not seem to be in commercial quantity.

On the Twin River structure, Parco Oil Co.'s No. 1 is reported resuming at 2,495 feet after running casing.

On the Montana side, Fulton Oil Co.'s test on the Milk River anticline close to the Alberta boundary is reported drilling near the base of the Colorado formation at 2,750 feet, after setting casing.

P. V. Rosewarne, of the supervisory mining engineer's branch at Ottawa, has been securing samples of gas from the Range Oil & Gas Co.'s No. 1 well east of Coutts and from the Red Coulee Field.

Pincher Creek Test

On the Mill Creek anticline in the Pincher Creek area, southwestern Alberta, Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, is reported drilling below 3,900 feet, having made more than 500 feet of new hole since Alberta Pacific Consolidated discontinued work and Weymarn Petroleum took back the test. The latest drilling reports indicate changes in formation. The test originally drilled into lime around 2,700 feet and later was reported to have entered a shale. Apparently the drill has now entered another lime horizon with some indications of possible production, but the exact position of affairs cannot be determined till the samples are carefully analyzed. The test has gone much deeper than was originally anticipated, the earlier drilling indicating strong prospects of commercial production in the lime at shallow depth.

Test in the Foothills

On the Moose Mountain structure, Graystone Consolidated's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, is reported resuming at 4,221 feet after installing new cable. At this depth a further small show of oil with some gas was reported. On the same structure, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is at 3,190 feet and running casing, hauling of which was held up for some time by bad roads.

On Fisher Creek, to the south, Cotton Belt Mines' No. 1, LSD 5, Section 21-21-4w5, is drilling at 2,020 feet and getting close to the Dalhousie sand horizon. Geological reports indicate the Dalhousie at 2,100 feet, with possibilities of light crude production.

Sage Creek Prospects

There has been some renewal of activity in the Sage Creek district of southeastern British Columbia. Crow's Nest-Glacier Oil Co.'s No. 1 was shot some years ago at 3,260 feet after encountering a show of light crude. The well bridged, and some difficulty was experienced in cleaning it out. According to an official of the company some 600 feet of 48 gravity crude was found in the hole; and the well has been placed on the pump. It is however, making only a few gallons a day, though pumping is continued in the hope of improved production. Crow's Nest-Glacier's No. 2, which has had derrick up for some time, is preparing to start drilling. The location is not far from No. 1. The company is testing leases of some 2,800 acres secured from Amalgamated Oil & Gas Co., which holds about 12,000 acres in the Sage Creek area.

Canadian-Kootenay Oil Co. of Vancover has started a test on the Flathead River close to the Daily bridge. This company held some acreage and at one time made a location in the Alberta end of the Red Coulee Field, but the test was never drilled owing to unfavorable conditions there. British Columbia Oil & Gas Co. has an unfinished test on Sage Creek, but no drilling has been reported for some time.

British Columbia Tests

Several other tests are drilling in British Columbia, Cariboo Oil Co.'s No. 1 Patrick, on the Australian ranch near Quesnel, is underreaming to 1,400 feet and will run casing. Oil showings were recently encountered around this depth and it was decided to case before drilling into the sand.

In the Kelowna district, Okanagan Oil & Gas Co.'s No. 1, Section 2-26-Osoyoos, is drilling below 1,825 feet.

In the Lulu Island area near Steveston, International Pipe Lines, Ltd., is reported to have overcome difficulties with caving and sanding above the gas horizon in its No. 4 well, and is planning additional drilling to develop a marketable gas production. Other interests have been leasing extensively in the Fraser River area south of New Westminster and are planning to drill for gas. There has been considerable staking also in the vicinity of Abbotsford. Drilling operations in the Fraser Valley some years ago encountered fair gas flows at a number of points, as well as oil showings, and it is hoped that a shallow gas field, even with small individual producers, might find a profitable market for its output in New Westminster or Vancouver. J. T. Wilson and W. H. Gibbs are reported carrying on geophysical investigations in some of these areas.

Wainwright Field Shut Down

The Wainwright Field in East Central Alberta, which has had six wells producing heavy crude through the summer months, is reported practically shut down. Five of the wells were shut in on September 12, and the sixth well will likely discontinue temporarily. The heavy crude was handled in small local plants, and official returns show a production up to the end of July of 5,237 bbls. from the field.

Fort Norman Field

After several years of inactivity, the Fort Norman oil field on the Mackenzie River may be re-opened to meet new demands for petroleum products in the far north. New mineral finds, including radium-bearing pitchblende, on the eastern shore of Great Bear Lake, has resulted in widespread prospecting activity, and a start has already been made in actual mining operations, with prospects for extensive activity next spring.

To the staking and working parties on Great Bear Lake, one of the chief maintenance problems, next to food, has been fuel. With heavy freight charges, a gallon of gasoline or oil is worth approximately $2, and frequently is not procurable at any price. Airplanes which are used extensively for rapid transport are forced to carry unusually large supplies of fuel. In addition to supplies for the mining area itself, the outlook is that largely increased quantities of freight will be transported in and out over the northern waterways. Transportation is from Waterways, Alberta, the end of steel, via the Athabaska, Great Slave Lake and the Mackenzie to Fort Norman, which is the nearest river point to the new mining territory. Fuel oil would, it is expected, speed up water traffic and facilitate hauling on the long portage between Fort Smith and Fort Fitzgerald.

The Fort Norman development, started in 1919, resulted in the drilling of five or six wells. Of these, two drilled by Imperial Oil, Ltd., were productive. They are at present capped and have a potential flow of 60 bbls. each, the crude being 30 gravity. Additional production could probably be developed at shallow depth by close-in drilling. The company some 10 years ago took in a small portable refinery which is still on the ground and if a demand develops for petroleum products, this plant could be operated. Earlier development work was hampered by the short season of open water with long distances and numerous transportation hardships; but Imperial Oil, Ltd., tested the possibilities of using airplanes in northern latitudes under winter conditions, with the result that regular air mail flights are now made to Fort Norman and other points on the Mackenzie. It is understood that several drilling outfits are still in the northern field.

Ontario Drilling

In Kenty County, Ontario, Olga Oil & Gas Co.'s No. 2, S half Lot 20, Concession 8, Raleigh Township, has finished a dry hole at around 1,668 feet. Location was about 750 feet north of Olga's No. 1 which was in the southwest quarter of the same lot. Olga's No. 1, drilled by Union Gas Co. last month got gas showings aggregating 300,000 feet a day between 1,507 and 1,629 feet, which a shot increased to 582,000 feet. Olga's No. 2 failed to get anything in this horizon, indicating that No. 1 was a freak well.

Farther south, Southern Ontario Gas Co.'s lake well opposite the George H. Dawson farm, Lot 187, Talbot Road, Romney Township, finished with a production of 250,000 feet a day.

In Middlesex County, Union Gas Co.'s No. 1 Ekfrid, Lot 7, Concession 5 south, Ekfrid Township, is being continued as a deep test of the Trenton lime. It got the Big Red formation around 1,715 feet and is now drilling more than 300 feet in the shale at about 2,050 feet. It will be continued to the granite. The Trenton limestone has not previously been tested in this area.

In the Newbury Field, no further locations have been made by Southern Ontario Gas Co. whose No. 9 in Mosa Township recent finished a dry hole.

Quebec Operations

According to the latest information, acreage leased or optioned in the St. Lawrence lowland area in Quebec aggregates several thousand square miles. The only drilling test under way is that of the Hope Engineering Co. near St. Denis, Richelieu County; though there has been some structure testing by other interests. Drilling many years ago indicated that the Trenton limestone, the most likely source of commercial production, is overlain by a much greater thickness of Queenston and Lorraine shales than had been anticipated; and operators who have taken out drilling licenses are reported planning to go to 6,000 feet if necessary; though there are possibilities of small commercial gas production at much shallower depth.

Companies holding acreage include Michigan Seaboard Oil Co. in St. Hyacinthe, Richelieu and Yamaska Counties; Alberta Gas & Fuel Co., a Henry L. Doherty subsidiary, in St. Hyacinthe, Richelieu, Bagot, Yamaska and Nicolet; South Shore Oil Lands, Ltd., in Yamaska and Nicolet; St. Hyacinthe Gas Co. Lands, Ltd., in Vercheres and Richelieu, and Louis Brochu in Yamaska and Nicolet. This acreage is all in territory bordering the south shore of the St. Lawrence between Montreal and Quebec. Staking for gas and oil commenced in the fall of 1929 and continued active through 1930.

LA.-ARK. FIELDS

(Continued from Page 39)

45 bbls. The North Louisiana decrease was due largely to a drop in the daily production of Caddo, heavy of 440 bbls. from the previous week.

The daily average runs from the several pools were:

North Louisiana

Caddo light	6,205
Caddo heavy	1,115
Homer	2,820
Haynesville	4,890
DeSoto and Red River	2,280
Elm Grove	370
Cotton Valley	350
Urania	3,000
Pleasant Hill	350
Sarepta-Carterville	880
Zwolle	6,545
Holly	390
Total North Louisiana	29,195
Total previous week	29,715
Decrease	520

Arkansas

El Dorado	3,200
Smackover light	3,200
Smackover heavy	26,720
Stephens	700
Nevada	1,120
Lisbon	610
Champagnolle	2,180
Urbana	360
Total Arkansas	38,090
Total previous week	38,045
Increase	45
Total both states	67,285
Total previous week	67,760
Decrease	475

EASTERN FIELDS

(Continued from Page 48)

eral Coal Co. tract in the Brown shale at a depth of 3,487 feet. It will make a fair gas well from that formation.

Cabell County

In Cabell County, about 1 mile north of Beckett station, the Carter Gas Co. completed its No. 86 on the Alfred Swann farm in Grant district in the Brown shale. It is showing for about 300,000 feet a day. In Harrison County, the Reserve Gas Co. intended to drill its No. 2 on the Enoch Post farm deeper from the Gordon to the Speechley sand. However it was drilled to 2,600 feet where a considerable flow of gas was struck in the Fifth sand and it was completed at that depth. This well is on the headwaters of Sycamore Creek in Union district.

In Kanawha County, the Winifrede Gas Co. completed its No. 18 on the J. A. Thomas farm in Cabin Creek district. It was drilled to 1,663 feet with a fair flow of gas. In Marion County, Victor Tennant drilled his test on the Minnie Price farm in Paw Paw district deeper to the Fifth sand at 2,712 feet. It will be a fair gas well at that depth.

In Mingo County, the United Fuel Gas Co. completed its No. 4332 on the Cotiga Development Co. lease in Hardee district at a considerable depth for this county. It went to 4,848 feet and is making close to 200,000 feet a day. On the waters of Beach Fork, Stonewall district, Wayne County, Meabon and Huffman completed a test on the Mary Doss farm in the Big Injun sand. It is showing for a very fair well from that sand with an initial flow of about 500,000 feet a day. This well is about 2½ miles north of their test on the Wayne Osborn farm on the waters of Indian Fork.

Drilling in West Virginia

Among the new operations not previously referred to, the Hamlin Natural Gas Co. has made a location on the Golza Bragg farm in Union district, Lincoln County. In Logan district, Logan County, the West Virginia Gas Corp. is building a rig for No. 35 on the Dingus Run Coal Co. and a road for No. 36.

In Lincoln County, Pridemore and Adkins have a test on the M. S. Miller and R. Topper lease in Jefferson district down to 1,350 feet. In the same section, the Turtle Lick Gas Co. is drilling at 1,400 feet on the Alice Brumfield farm. In Union district, the Woodyal Gas Co. has spudded in and started drilling a second well on the Thomas Burns farm. In Sheridan district, the Martin Gas Co. has shut down to run casing in No. 3 on the Elias Bias heirs' farm. The depth is now 1,150 feet.

In Mingo County, the Mingo Martin Gas Co. has reached 900 feet on the G. R. C. Wiles farm in Warfield district. In the same district, the United Fuel Gas Co. is making fair progress on the Central Trust Co. lease. Its No. 4,327, on that tract, is down to 1,375 feet, and its No. 4,328 is drilling at 2,512 feet. It also has rigs standing for its No. 4,329, same lease, and No. 4,331, on the Cotiga Development Co. tract in Hardee district. In Warfield district. Oscar Sears is drilling on the M. H. Waldron heirs' farm and has reached 1,375 feet. In Harvey district, the Ohio Southern Gas Co. has a rig standing on the Cowden and Workman lease.

In Wetzel County, the Pittsburgh & West Virginia Gas Co. is drilling on the Henry Himmelrick farm in Church district and is down to 2,515 feet. In the same district, the Manufacturers Light & Heat Co. has a rig standing on its old No. 1,572 on the D. W. Stewart farm preparatory to drilling it deeper. In Clay district, the same company is cleaning out and testing its No. 2,190 on the A. and M. E. Jolliffe farm which was drilled deeper to 2,900 feet. In the same district, this company has a rig standing on the W. P. Hubbard farm to drill its No. 3,300 deeper. In Proctor district, Ray Hennen and others have a rig standing on the Jesse Parson farm.

In Boone County, the Pure Oil Co. is still active with its No. 54 on the Federal Coal Co. tract in Sherman district drilling at 1,393 feet. It is building a rig for its No. 55 on the same tract. In this district, Godfrey L. Cabot has several locations and wells drilling on the Federal Coal Co. lease. His No. 48 is drilling at 470 feet and his No. 50 at 325 feet. His second test on the J. Q. Dickinson farm in the same district has reached 450 feet. In Scott, Peytonia, Washington and Sherman districts, the Owens Bottle Co. is active with three rigs and tools ready for additional drilling and several rigs standing.

SOUTHWEST PENNSYLVANIA

In the Southwest Pennsylvania Field two gas wells furnished the total of the week's operations. In Robinson Township, Washington County, a local syndicate completed a second well on the William Cain farm in the Big Injun sand at 1,275 feet. It is a very fair gas well for the district having tested at 500,000 feet a day. In Greene County, H. D. Freeland & Co. drilled a test on the Silas Coen farm deeper to the Bayard sand at 3,373 feet and have a fair flow of gas from that formation. No new wells were started during the week. J. B. Orndoff is about due in the sand in his test on the J. E. Scott farm in Center district, the tools having reached 3,024 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 42)

Badger Creek Oil & Gas Co.'s No. 1 Kent, SW cor., Section 2-2n-57, Badger Creek structure, is shut down at 1,165 feet, corrected depth.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is shut down at 3,936 feet.

Adams County

Hills Dome Lease Development's No. 1 Hills, SE cor., Section 27-3s-64, is shut down at 3,720 feet.

Boulder County

Julius Williams' No. 1 Degge, NE SE SE, Section 6-1n-71, Boulder arch, is drilling below 300 feet. The Hygiene is expected at 800 to 1,000 feet.

C. T. Ahlstrand's No. 1 Woodley, SE NE NW, Section 8-3n-70. Lyons district, is drilling at 192 feet. It expects to go around 1,100 feet.

Park County

South Park Oil & Gas Co.'s No. 1 Esche, SE cor. NW, Section 5-9s-76, Muleshoe Dome, is delayed by a fishing job at a total depth of 2,465 feet. The 8¼-inch parted when it was lifted to underream. The hole is supposed to be bottomed in the top of the Dakota formation and has been showing a little gas. South Park Oil Co.'s No. 1 Milligan, NE cor. SE, Section 13-8s-76, Jefferson district, is underreaming the 6⅝-inch to bottom at 2,458 feet.

Routt County

Mid-Colorado Petroleum Co.'s No. 1 Omholt, NE cor. SE, Section 29-4n-87, Fish Creek Dome, resumed recently and is drilling at 540 feet with a good show of gas. This operation was started under the name of the Fish Creek Oil & Gas Co. George E. Gillespie, of Steamboat Springs; Lou Gorham, of Denver, and W. H. Ingersoll are interested in the operation. It is near a well drilled several years ago which showed considerable gas in several horizons. The principal gas horizon is expected at 1,200 feet.

Archuleta County

Standard Oil Co. of Colorado's No. 1 Fitzhugh, NW SE SW, Section 34-33-1e, Chromo Dome, is preparing to run casing for a water shutoff. It topped a water sand at 509 feet. Below the sand it went through 18 feet of shale and then 3 feet into another sand showing some oil and gas.

NEW MEXICO

Lea County

Two new locations were made in the Hobbs area the past week. One was Continental Oil Co.'s No. 4-B State, 1,780 feet from the east line and 1,920 feet from the south line, Section 33-18-38. This well is about half a mile to the east of its No. 3-B State and a diagonal offset on the northwest to Gypsy Oil Co.'s No. 1 East Grimes, both being started as a result of the putting on production of the Midwest Refining Co.'s No. 29 Turner. Both operations are between the Turner well and the nearest producers on the west. The other location is Pacific Coast Oil Co.'s No. 1 Blakey, C SW NW, Section 29-19-38, to the southwest of the Hobbs Pool. It is 1½ miles to the northwest of Cecil Bordages' No. 1 Hughes, which was abandoned some time ago, and 2 miles southwest of the nearest producer in the Hobbs Pool. Gypsy Oil Co.'s No. 1 East Grimes, SW NE SE, Section 33-18-38, is building rig.

A fire last week destroyed six tanks on the Midwest Refining Co.'s Byers lease, resulting in damage to the extent of about $2,500. Four of the 500-bbl. tanks were full of oil.

Culberson & Conrad's No. 1 State, C NE, Section 22-18-34, Caprock area, is drilling at 4,030 feet in lime and anhydrite.

Eddy County

R. D. Compton's No. 4 Brainard, SE SE, Section 5-18-27, Artesia district, at a total depth of 1,217 feet, was filled with mud and temporarily completed. It will be completed later as an oil well. It is on a government permit and it will be allowed to stand until lease is issued.

Flynn, Welch & Yates' No. 60 State, SW cor., Section 5-19-28, is drilling at 1,950 feet in lime. It topped the lime at 1,820 feet, had a show of gas at 1,850 feet, and a show of oil at 1,930-41 feet.

Oil Well Drilling Co.'s No. 1 Baker, SE NE NE, Section 21-21-26, Carlsbad area, is trying to test a small show of oil at 1,120-55 feet. Total depth is 1,155 feet and 2-inch tubing was run to bottom.

Santa Fe County

Meyers-Owsley Drilling Co.'s No. 1 Cantwell, NW cor., Section 5-10n-9e, is drilling at 266 feet in the red beds.

DeBaca County

Landowners Oil Co.'s No. 1 McAdoo, SW cor. NE, Section 16-1s-27, Buffalo Creek area, is drilling at 4,550 feet after installing new cable. It is reported to have topped the Pennsylvania at 4,080 feet.

San Miguel County

Star Oil Co., Ltd.'s No. 3 Adams, NE cor., Section 25-17-17, Graham structure, is drilling at 4,776 feet after landing the 5⅛-inch at 4,761 feet to shut off a water sand at 4,730 feet. Below the water it had a good show of gas.

Guadalupe County

New Mexico Producing & Refining Co., Ltd.'s No. 1 McMillan, SW cor., Section 24-5n-16, Mesa Leon district, is drilling at 2,340 feet in lime.

Torrance County

Estancia Valley Carbon Dioxide Development Co.'s No. 2 DeHart, SE SE, Section 12-7n-7e, is drilling at 400 feet.

San Juan County

Seven young men were convicted in the district court at Farmington the past week on charges of tapping the Midwest Refining Co.'s pipe line from the Hogback Field to the refinery at Farmington, and stealing crude oil. They were fined $50 to $100 each and given jail sentences of 60 to 90 days. About 200 bbls. of crude had been taken, according to the testimony, when the theft was discovered.

The Continental Oil Co. is increasing its activity in the Rattlesnake Pool. It has gone back into its No. 17 Santa Fe Corp., C NE, Section 2-29-19, and is cleaning out to bottom at 6,790 feet. This was the discovery well in the Pennsylvanian formation which was completed in April, 1929, making 1,200 bbls. of fluid per day, of which 600 to 800 bbls. was oil. The water came from a horizon above the pay, and on account of the depth and reduced size of the hole, this water could not be shut off. The well has been on production ever since. Another test to the same horizon is being drilled with rotary tools in its No. 24, SW NW SW, Section 1-29-19, half a mile to the southeast. This well is bottomed at 5,719 feet and is milling. The deep test drilled in 1929 had 2,000 bbls. of production in the Dakota at 752 feet which was cased off to go deeper. No. 24 also passed up production in that formation for the same reason. Its No. 25, NE NW SE, Section 2-29-19, is being drilled to the shallow horizon and is setting pipe on top of the first sand at 705 feet.

Oretga Interests' No. 2 Ute, NW NW, Section 24-31-16, Westwater district, has recovered bit at a total depth of 2,490 feet and is preparing to resume.

Rio Grande Development Co.'s No. 2 Lanier, SE cor. NW, Section 9-29-11, Bloomfield district, which has been standing at 1,515 feet, is being conditioned to resume. The 6⅝-inch is at 1,490 feet. It is headed for the Picture Cliff, expected below 1,700 feet.

Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, is drilling at 3,635 feet after running casing to shut off salt water. It had a good show of oil at 3,615 feet in the bottom of the Lewis shale or top of the Mesa Verde.

WYOMING

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, is coring deeper in shale below 7,399 feet. It found a little water and a show of gas in the second Frontier.

Bales Oil Trust, composed of J. W. Bales, B. J. Knudson and Wayne Sprague, all of Billings, Mont., is moving in a rig to drill 125 feet north of one of the Ohio Oil Co.'s gas wells on the Hidden Dome. Four gas wells on the dome came in a number of years ago for around 12,000,000 feet per day each in the Frontier sands at 1,220 feet, 1,325 feet and 1,500 feet. The Ohio company started a deep test in its No. 3, SW NE SE, Section 31-48-90, in 1927, but suspended indefinitely at 2,790 feet. Aside from this well, no tests have been drilled below the Frontier.

Park County

Midwest Refining Co.'s No. 24 Rosenberg, NE SE NE, Section 26-58-98, Frannie Dome, is drilling at 2,210 feet after making a water shutoff.

Natrona County

Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, is cleaning out at 6,003 feet. It is below the Muddy sand which showed considerable oil and gas, but on which no satisfactory test was obtained. The plan is to drill to the Dakota and again cement back to the Muddy.

Niobrara County

Indian Petroleum Co.'s No. 1, NE NW NE, Section 7-35-65, Lance Creek, is bottomed at 4,175 feet and underreaming to lower pipe to top of lost underreamer lug.

Weston County

Carl Cundy's No. 2, NW NE NE, Section 31-46-64, Osage Field, is drilling ahead after setting 8¼-inch at 397 feet. Tom Don and others' No. 3, NW SW SE, Section 23-46-64, is drilling at 1,500 feet, and the Central Oil Co.'s No. 1, NW cor., Section 26-46-64, reached the top of the sand at 2,106 feet and is preparing to run casing. Riggs Oil Co.'s No. 1, SE cor. NE, Section 16-46-64, picked up the top of the Muddy at 3,188 feet and shut down to run casing before drilling in. The hole filled 200 feet with fluid. This well is on the western side of the field, 1½ miles west of Beaver Creek. The log shows a dip of more than 1,100 feet to the west measured on the Muddy sand in the West Osage Oil Co.'s well a mile to the east.

Crook County

Northwest Oil & Gas Co.'s No. 1 Wolff, NW cor., Section 6-54-60, Oak Creek Dome, is spudding. This structure, which has a northwest-southeast trend, extends over into South Dakota.

Converse County

Otto Olston and others' No. 1 Carey ranch, Section 6-32-74, Box Elder Basin, is drilling in the lower part of the Chugwater and not far from an artesian flow expected just above the Embar.

Carbon County

Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, set casing at 3,820 feet in gray shale. Producers & Refiners Corp.'s No. 3, Section 3-25-88, Mahoney

(Continued on Page 81)

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Tulsa, Oklahoma

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OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

200 Amp. Lincoln Arc Welded 220/3/60. Practically new. Price $425.00. 100 Amp. Federal Butt Welder; 220 V. 60 cy. Complete. Excellent condition. $500.00. 12"x14" Chicago Pneumatic Air Compressor. $350.000. 46"x18' Niles Lathe, Quick change; $1,250.00. Also, large stock of lathes, shapers, malling machines, pipe machines, bolt threaders; etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, O.

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WANTED TO BUY one used set of official A. P. I. Cable Drilling Tool Joint Master Gauges size three to five inch. Answer Box E-561, The Oil and Gas Journal, Tulsa, Okla.

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TEXAS LANDS wanted. Cash buyers for south and western lands; good exchanges and buyers for Texas lands. Write J. E. Sherman, Falfurrias, Tex.

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NEED SOME MORE GOOD CORRESPONDENTS in every city of United States and Canada to co-operate with me in selling producing and nonproducing royalties. Write, James R. Haynes, Grantville, Kans.

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Entirely proven acres in center of West Texas pools to let on drilling contract. H. Freels, 1526 Birchwood, Ave, Chicago, Ill.

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BROOKWORTH,
110 East 42nd St., New York.

JAMES E. MILLER CO. will co-operate with responsible firms or parties seeking aid in financing projects of higher order. Suite 200, New Brady Hotel, Tulsa, Okla.

JOHN MORRIS, 3608 WARREN ST., PHILADELPHIA, PA., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security. Electric Bldg., Denver, Colo.

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WILL BLOCK leases Montgomery County, Miss. (well defined structure). High-gravity, paraffine base oil. 217 Court, Memphis, Tenn.

LEASE for Oil. 2,400 acres in Block, Coke Co., Tex. $5 cash and $15 in oil and cash. Joseph Manz, Olmitz, Kans.

FOR SALE—Gas leases on structure Kentucky and Tennessee. Can furnish blocks of from 100 to 150,000 acres. A. W. Richards, Box 239, Bowling Green, Kentucky.

FOR SMALL lease tracts around East Texas wildcat wells, write, W. J. Dobbs, 915 Tower Petroleum Bldg., Dallas, Tex.

WANTED seismic shot holes, shallow production and core drilling, Ritter and Dugan Drilling Co., Perry, Okla.

FOR SALE
Oil and gas lease of 320 acres located in heart of gas field in Stevens County, Kansas. Address Box B, Las Animas, Colo.

WILL PAY cash for large producing Gas property. Owners only. Address Box E-557, The Oil and Gas Journal, Tulsa, Okla.

We offer Producing Gas Properties in Ky., O, and W. Va.
ED E. WALKER & CO.
519 Madison Ave. Covington, Ky.

ROYALTIES—PRODUCTION

UNUSUAL OPPORTUNITIES FOR ROYALTY INVESTORS AND DISTRIBUTORS.

THE MERCURY COMPANY
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ROYALTY BROKERS AND INVESTORS
Let Valuation Engineer buy royalties for you. Prices now lowest in history. Twelve years experience appraising oil properties. My plan assures profitable investments. Write R. B. ALLPORT, Hunt Bldg., Tulsa, Okla.

JAMES B. McANALLY

Speculative and Investment Royalties

Hunt Building, Tulsa, Okla.

Service to dealers, Oklahoma, Kansas and East Texas.

AM SPECIALIZING in the sale of gas production and gas royalties in the Texas Panhandle, the largest gas field in the world. Thirty years in business here, and my business is good. Learn the reason. Wire or write E. B. Reeves, Alanreed, Gray County, Texas.

BUY PERPETUAL ROYALTY, Great New Mexico-West Texas oil area. Then watch immediate development, $3 acre up. J. O. Garlington, 3618 Crestline, Ft. Worth, Texas.

ROYALTIES—Okla., Kans., Texas proven gas royalties, offsetting large wells, Hugoton Field, Stevens County, Kansas. Structure maps free. Agents wanted. Harry Haynes, Grantville, Kans.

MID-CONTINENT OIL ROYALTIES
Royalty Sales Company
Suite 523
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WILL PAY CASH for producing Royalties anywhere. Send ful information. Merrick C. Ham, Pres., Lamont & Co., Ltd., 1107-8 Bartlett Bldg., Los Angeles, Calif.

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Alexander Bldg. Tulsa, Okla.

OKLAHOMA FIELDS

(Continued from Page 34)

reached pay horizons and are showing oil: H. J. Brown and K. D. Oil Co.'s No. 1 Hightower, SW cor. SE NE, Section 15-3s-5w, found a showing of oil in sand at 989-1,005 feet; no pumping test has been made and the well is shut down awaiting a pipe line connection. J. C. Chambers and others' No. 1 M. Dare, SW cor. NW SE, Section 2-2s-8w, has cemented casing on top of an oil sand found from 1,362-67 feet; the test was drilled on the north side of the Comanche Field. G. Pace's No. 10 O. McMaster, SE cor. NE NW NE, Section 13-2s-8w, has cemented casing to test a showing of oil found from 1,440-60 feet.

During the week ending September 14, it is believed the Prairie Pipe Line Co. delivered to the Sinclair Oil & Gas Co. approximately 36,000 bbls. a day from storage in Oklahoma, Kansas and Texas. The oil was delivered to the Sinclair refinery at Chicago. The daily average pipe line shipments from the Seminole area continue at an even trend, with but little of the current production going into storage. For the week ended September 14, the pipe line shipments averaged 42,000 bbls. a day. The Konawa district averaged 2,100 bbls., St. Louis district averaged 12,800 bbls. and Asher district averaged 2,600 bbls.

It is reported that some irregularities in producing the oil from the Greater Seminole district have been reported to Cicero I. Murray, in charge of the shutdown under martial law. It was claimed that some of the companies were taking advantage of the permits granted to wells making water in the area. During the week Murray served notice to owners of approximately 60 wells that they must produce the wells in accordance with orders.

Greater Seminole Production

The allowables for the Greater Seminole area for the month of October will probably be made by deducting the usual 3 per cent from the previous month's production.

The total production from the Greater Seminole area for the month of August and the number of wells producing in each pool is shown in the table below:

Pool—	Wells	August prod.
Little River	350	374,922
East Little River	73	109,170
Carr City	86	125,118
Maud	135	33,164
Mission	89	86,933
Bowlegs	272	183,887
Earlsboro	273	276,143
South Earlsboro	36	76,412
East Earlsboro	152	177,375
Seminole	236	225,613
St. Louis	468	451,012
Pearson	46	12,626
Asher	24	14,915
Wanette	63	87,946
Konawa	108	83,644
Sasakwa	39	58,543
Wewoka	24	93,630
Total	2,454	2,276,053

Seminole Production

The production from the Greater Seminole area for the week ending September 24, was approximately 69,710 bbls. The first 12 pools listed below comprise the Seminole area which averaged 45,955 bbls.

Pool—	Bbls.
Little River	10,510
East Little River	1,460
Carr City	6,470
Maud	1,035
Mission	1,995
Bowlegs	5,325
Earlsboro	9,245
East Earlsboro	2,420
South Earlsboro	2,740
Seminole	1,405
East Seminole	1,066
Searight	2,285
Total	45,955
Allen	3,180
Asher	355
Wanette	1,795
Konawa	1,310
Sasakwa	3,310
St. Louis-Pearson	13,805
Total	69,710

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending September 26 were 126,562 bbls., an average of 18,080 bbls. a day. The shipments by companies were as follows:

Company—	Bbls.
Champlin	12,117
Continental	5,228
Oklahoma	15,440
Operators	11,392
Tidal	2,966
Anderson-Prichard	5,516
Capitol	1,543
Sinclair	14,207
Wilcox	7,244
Stanolind	42,135
Healdton	2,142
Shell	1,412
Empire	5,221
Total	126,562

The daily production and pipe line shipments from the Oklahoma City Field for the week ending September 26 were as follows:

Date—	Prod.	Wells	Shipments
September 20	5,761	8	7,903
September 21	947	6	4,881
September 22	1,897	11	3,992
September 23	7,477	9	7,320
September 24	5,576	10	21,503
September 25	16,908	11	12,322
September 26	3,931	9	63,356

Creek County

Westfall Drilling Co.'s No. 1-A McGee, SE cor. SW SW, Section 25-19-8, has been completed for 50 bbls. in Skinner sand 2,220-64 feet. Burton & Holmes' No. 2 V. Barnett, CNL SE NW, Section 7-19-10, is dry and abandoned at 2,209 feet. National Investors Co.'s No. 1 Posey, NW cor. SW SE, Section 17-16-8, has been completed for 400 bbls. in top of sand at 3,300 feet. S. J. Mathews and others' No. 1 Vierson, CSL SE SE, Section 16-16-11, has been completed for 1,250,000 feet of gas in sand 585-97 feet.

Marshall County

D. H. Curry's No. 1 Ward, NW cor. SW SE, Section 15-5s-6, is a dry hole at 2,311 feet.

Oklahoma County

Phillips Petroleum Co. made location for No. 1 Brittain, NW cor. NE SE, Section 35-12n-3w, Oklahoma City Pool. Location was also made for No. 2 Ashcan, NE cor. NW NE NE, Section 3-11-3w. Laco Petroleum Co.'s No. 1 Polin, SW cor. NW SW, Section 2-11-3w, has been abandoned at 2,700 feet. T. B. Slick estate's No. 4 Central, SW cor. NE SE SE, Section 3-11-3w, has been completed for 257 bbls. in 8 hours from Wilcox sand at a total depth of 6,540 feet. No. 6 Classen-Edwards, SW cor. SE SW, Section 3-11-3w, made 4,498 bbls. in three hours from Wilcox sand topped at 6,351 feet, total depth 6,517 feet.

Osage County

Oklahoma Power & Water Co.'s No. 133, NW cor. NE, Section 26-21-9, has been abandoned at 2,348 feet.

Stephens County

Murray Petroleum Co.'s No. 1 Wilkerson, SE cor. NE SE, Section 8-1s-5w, is rigging up. American Pipe Line Co.'s No. 7 Dexter, NE cor. SE SE NW, Section 34-1s-8w, is pumping 35 bbls. after drilling to sand 1,974-76 feet, total depth 1,977 feet.

LeFlore County

Sooner Oil & Gas Co.'s No. 1 Robbs, SW cor., Section 26-7-26, has been completed for 750,000 feet of gas in sand 1,445-1,520 feet.

Muskogee County

R. A. Godfrey and others' No. 1 L. Benge, NE cor. SE NE, Section 8-15-18, has been completed for 10,300,000 feet of gas in sand 1,572-82 feet.

Okmulgee County

Kirkland & Son's No. 7 E. Brown, CSL NW SW, Section 9-15-13, is spudding.

Pittsburg County

Utilities Production Co.'s No. 4 Kohler, SW cor. SE SW, Section 11-7-18, is drilling at 520 feet.

DRILLING IN CZECHOSLOVAKIA

The Czechoslovak Ministry of Public Works has negotiated for purchase of modern equipment for deep well drilling, to be used in the oil fields of Bardejov, Zlorov, Vysni Komarnik and Mikov. Drilling has not been systematic in the past due to a lack of equipment, but with the new machinery it can be continued throughout the winter months. Geological tests are being continued in the most promising areas, especially near Jasina and Luh, and wells will be sunk next year in these fields.

CLASSIFIED WANTS

ROYALTIES—PRODUCTION

PRODUCTION, and nonproducing gas royalties, Stevens County, and Panhandle fields, Kansas, Oklahoma and Texas royalties. Special service for brokers. List and maps. James R. Haynes, Grantville, Kans.

BEDROCK ROYALTY PRICES ahead of drilling on major company blocks. $6 per square mile. Perpetual deeds and title warranty. Clearly stated and understandable interests. See maps and bulletins. R. R. Fisk, Box 1214-B, Wichita Falls, Tex.

POSITIONS WANTED

MANAGER AND SUPERINTENDENT
Graduate engineer, 12 years oil field experience with major and independent companies, in geological, scouting, land and leasing, drilling and production departments. Thoroughly experienced oil field manager with exceptional references. Will accept position in any of above departments or in charge of operations or developments. Write Box E-522, The Oil and Gas Journal, Tulsa, Okla.

PETROLEUM Chemist and Refiner—Eight years complete plant experience. Knock testing and hydrocarbon gas analyses. Available October 1. Address Box E-573, The Oil and Gas Journal, Tulsa, Okla.

NATURAL GASOLINE PLANT ENGINEER. Fourteen years experience on West Coast and in Mid-Continent fields. Antique and modern, plant and equipment, design, construction and operation. At present unsatisfactorily employed. Not particular as to location of employment. Excellent credentials. Last five years in executive capacities. Age 36. Address Box E-572, The Oil and Gas Journal, Tulsa, Okla.

SALESMAN with experience selling oilfield and refinery equipment both foreign and domestic oilfields. Box E-570, The Oil and Gas Journal, Tulsa, Okla.

9 YEARS experience oil absorption, compression and charcoal plants. Loading rack to superintendent. Write Box E-571, The Oil and Gas Journal, Tulsa, Okla.

MAN STENOGRAPHER and Secretary, 2 years' experience, general office work and bookkeeping. Age 24, college graduate, single. Address Box E-580, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

SUPERINTENDENT — By thorough experienced refiner made so by 17 years continued service. Topping, cracking and lubricating. Can design and build complete plant. Best references. Address Box E-574, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANT brokers and salesmen everywhere to sell my royalties. Write Box E-563, The Oil and Gas Journal, Tulsa, Okla.

HOUNDS

HUNDRED COONHOUNDS. Foxhounds. Rabbithounds. Blueticks. Redbones. Blacktans. Supply Catalog. Beckennels, A-47, Herrick, Illinois.

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Fireproof, remodeled, new management. Free parking. Prompt, courteous service. Rates $1.00 up. Private baths $1.50.

OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
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FOR SALE—MAPS

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Prices on Request

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Fair Bldg. Fort Worth, Tex.

KANSAS OIL FIELD MAPS
The Kansas Blue Print Co.
Wichita, Kans.

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The buyers' first thought when looking for any of these classifications is the same as the sellers', Classified Advertising, that's why it produces such wonderful results.

THE OIL & GAS JOURNAL
TULSA, - - - OKLA.

Regular Grade of 70 Octane Number

Big and Little Marketers in Chicago Territory Look for Its Appearance Soon and a Better Third Grade. Prices Down

By Robert C. Conine

Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Sept. 28.—So firm is the belief held among major company executives as well as small jobbers that this territory is soon to witness the introduction of 70 octane number gasoline as the regular grade and the demotion of the present "regular" to the position of third grade that any attempt at this time to "lay the ghost" will probably meet with a reverberation of "oh, yeah's?". All the evidence that has been gathered, as pointed out in these columns last week, does support the report that one of the major companies is planning to put an improved regular grade on the market, but there is absolutely nothing to indicate that this company feels the need of raising the antiknock value of this product above the present rating of 62 to 64 octane number.

Nor is there the slightest evidence that this company has changed in its attitude toward the colored third-grade gasoline, which has an antiknock rating of from 52 to 54 octane number. The only changes seen for this price competition material relate to the initial and endpoint with the consequential changes in gravity. As for the rumored dropping of the third-grade gasoline, it is considered safe to repeat in these columns that the third-grade gasoline is destined to remain with us for a long time.

Wisconsin Origin of Rumor

Genesis of the rumor that a 70 octane number gasoline was scheduled for the territory has been traced back to a dozen Wisconsin cities and towns. In that State gasoline may be of the highest quality that millions of dollars spent in research can produce, but if it has not gravity to the liking of oil inspectors trained in the old Pennsylvania school it suffers in comparison with a fair blend of naphtha and natural gasoline. The gravity of the gasoline is boldly displayed at the service station and it is of prime importance in appealing to the motoring public of Wisconsin.

It was, therefore, up to the major companies operating in that State to market a gasoline of 62 gravity or better if they were to hold their own. From this point forward there is nothing official in the reports of further developments which bring us to the present, but it is considered certain that the constant improvements which the major companies are making on their products will be reflected shortly in a close adjustment of motor fuel characteristics to seasonal considerations, entailing betterments in initial, endpoint and gravity.

Cracking Installations

Installations, more or less extensive, for producing cracked gasoline have been completed in record time at three refineries in the Chicago district, and at a fourth refinery—that of a smaller interest—a hurried attempt to conserve as much as possible of the good antiknock quality of the gasoline by less stringent treating methods, ended suddenly on the rocks of pseudo-gum. A fifth refiner, a major company, has been so certain that higher octane numbers were to be decreed in the territory that it is now prepared at a moment's notice to market a 70 octane number gasoline at the regular grade pumps.

Just why this situation should arise at a time when gasoline is infinitely better and cheaper than it has ever been, and when refiners all over the country are closing down their plants because they cannot afford to produce the gasoline of current specifications under the present markets, might suggest that the industry is not aloof from touches of hysteria. Many refiners feel that they are practically giving their material away, and yet they entertain the notion, indeed some have acted upon it, that they will soon be called upon to go to the additional expense of adding to the quality of this material. A better application of funds is being made at one large refinery and two small refineries in the district. At these three plants there is no thought of raising the antiknock rating of the gasoline, but installations are being made to utilize refinery waste gases, to modernize equipment for more economical operation.

Great Lakes Gasoline Pipe Line

In the matter of improved initial, endpoint, and gravity, it is reliably reported that the member companies of the Great Lakes gasoline pipe line are considering plans for bringing the gasoline in the line up to the expected new specifications at some common point below Kansas City, or at Kansas City. This plan appears to be favored over that of having each member-tender of the required specifications as it goes into the line.

Gasoline Tank Car Markets

The gasoline tank car markets continued their downward movement and as the low of 2½ cents for U. S. Motor specifications material was reached the buyers ignored the better statistical position in the Mid-Continent, the lessened supply of "distress" gasoline in the Chicago district, and proceeded to worry about the projected reopening of the Oklahoma City Field Thursday. That the smaller refineries continue to shut down, that several Mid-Continent refiners are finding it more economical to buy gasoline than make it, and that the last weekly report of the American Petroleum Institute is very encouraging, have failed to retard, up to Monday, the decline in the gasoline markets. According to the A. P. I. figures, 197,000 bbls. less crude was run to stills over the preceding week; there was 695,000 bbls. less gasoline stocks, and the production of cracked gasoline showed a decline of 174,000 bbls., of which 34,000 bbls. was represented in reduced output in the district.

The warm weather which has adversely affected the burning oil markets and served to keep the motor fuel demand at a high mark gave the first sign of waning Saturday when the citizens awoke to find the thermometer around 50° F., and a gloomy fall sky overhead. The chill winds were worth an eighth of a cent to the distributors of oil products for domestic and industrial heating purposes, but they likewise reminded the gasoline marketers that the motoring season was coming to a close.

Inspect Contract Clauses

Several marketers, among them major interests, who have based their prices on the Red Crown tank wagon posting, Monday, were feeling somewhat easier because they spent the last two weeks making sure that if specifications on Red Crown are changed they will not be in a "bad spot." One major company, according to one of the officials, has deleted the name of any other company (as a price basis) in its contracts. In the majority of cases where the tank wagon posting of a major company was named it was also stated that the marginal guarantee applied only if the major company's gasoline remained of the quality specified on the date the contract was made.

On Monday U. S. Motor grade gasoline ruling prices were 2½ to 3 cents. It was reported that some material was moving below 2½ cents but this could not be verified and would be in negligible quantities. Several refiners have withdrawn from the open markets and are quoting as high as 5 cents on spot business. It may be remarked that those marketers who allowed a quarter of a cent and three-eighths of a cent below the low of the ruling prices on their contracts are moving this business at 2.25 and 2.125 cents, respectively. On the marginal guarantee of 6 cents the price would be 2.59 cents, and it is at this point that the refiners are hoping to discover rock bottom when the present muddled conditions clear up a bit. In a few quarters it is said that prices will continue to fall until the lowest levels reached this year will be paralleled, if not exceeded, but the more prevalent view is that as soon as definite developments are seen in the Oklahoma, Kansas and Texas fields in crude oil production the industry will be on firmer ground and the nervousness and hesitancy which marks the current market activities will be greatly modified or entirely disappear.

Pepping Up Gasoline

The 60-62 gravity, 400 endpoint gasoline likewise dropped a half a cent to a range Monday of 2⅝ to 3¼ cents. However, it is reported that the larger volume of this material is moving at the higher figure and the supply of this gasoline does not remotely compare with that of the 437 endpoint material of 58-60 gravity. All of the high tests showed lesser declines, and in line with the approaching demand for this type of material for the cooler weather the major companies have been moving increased volumes of natural gasoline to their plants.

The 64-66, 375 endpoint gasoline fell a quarter of a cent to ruling prices of 3¼ to 3½ cents, and the 68-70, 360 endpoint material showed a similar decline when it was quoted Monday at 3⅝ to 4 cents. The blended motor fuel of 64-66 gravity and 437 endpoint is again being offered by distributors with prices ruling between 2⅝ and 3 cents. The 50-52, 450 endpoint naphtha weakened considerably and was quoted Monday at 2½ to 2¾ cents.

Price Cutters More Moderate

The tour of the city last week disclosed the fact that the trackage station operators have apparently decided that it does not pay to go too far in underselling the larger companies. For a week or so after the major interests raised their service station postings back to normal after drastic reductions to meet price competition, the trackage station operators found the fallen tank car markets to their liking and celebrated their return to activity by posting prices as low as 6 cents, plus tax. This celebration has apparently come to a close and today the cut-price operators asks 9 cents, plus tax, for his gasoline, while the major companies demand 9.5 cents, plus tax, for the third grade. It may be worth noting that two major companies offer a slight price concession to motorists taking quantities in excess of 5 gallons.

Deception Practiced

During its investigations into gasoline bootlegging activities the Gasoline Tax Evasion Committee, according to a member, has discovered that at a number of franchise stations motor fuel and other products offered under the brand of a major company or in a major company's containers are adulterated or not the material originally provided by the refiner. "We have picked up cans of lubricating oil," the committeeman said, "with the brands of * * * (several major refiners), and we have tested various gasolines marketed under these brands, and have found that the poorest kinds of lubricants and blends of kerosene and natural gasoline have been substituted for the material properly so branded."

The Gasoline Tax Evasion Committee has been testing motor fuels, especially, to ascertain if the untaxed kerosene and naphthas were being blended with natural gasoline as a means of evading a part of the state gasoline levy. They have likewise been interested in discovering what kind of lubricating oils can be profitably marketed at the low prices quoted at a number of price-cutting stations. The war against gasoline tax evasion is to be carried directly to the public. Information is being gathered, according to an official statement from the committee, which will show to the motoring public that it is losing much more to the gasoline tax evaders than the tax returns indicate. It is pointed out that when all legitimate charges and costs are deducted from the lowest prices that have been offered from cut-price stations there is little or nothing left. In fact, at several points in the territory the retailer is losing a fraction of a cent on every gallon of gasoline he sells. A report which the Gasoline Tax Evasion Committee is soon to present to the public is expected to show that the public cannot get something for nothing.

Price Cuts in Territory

Latest reductions in Red Crown service station postings are: Des Moines, from 11.5 to 10.4 cents, plus tax; Topeka, from 7.9 to 6.9 cents, plus tax; Ethyl at Topeka was reduced from 12.9 to 10.9 cents, plus tax; Davenport, 11.5 to 9.5 cents, plus tax; cut effective in Davenport applies also to Rock Island, Ill., and Moline. Stanolind Blue service station reductions were made at: Detroit, 13.3 to 13.1 cents; Grand Rapids, 13.2 to 12.2 cents; St. Joseph, 9.9 to 7.9 cents, plus tax; Peoria, 9.9 to 9 cents, plus tax; Davenport, 10 to 7.9 cents, plus tax; Wichita, 8.3 to 6.8 cents, plus tax; Topeka, 8.4 to 5.9 cents, plus tax, and LaCrosse, 10.7 to 10 cents, plus tax.

Kerosene Markets

The kerosene markets have weakened somewhat in price and demand continues far below expectation. According to some marketers much of this material is being used to cut distillate for fuel consumption and the present stocks will continue in bad relation to demand unless the refiners decide to crack this material into gasoline. Although the statistical position of kerosene, as compared with other seasons, is greatly in its favor, that is, stocks are 25 per cent lower, the cheap gasoline markets have effectually shut out important outlets for this product. The 41-43 water white kerosene was being offered Monday at 1¾ to 1⅞ cents, and the 42-44 water white material was quoted at 1⅞ to 2 cents. Some prime white material was offered at 1½ cents.

Lubricating Oils

Bright stocks and neutrals continue strong and better in price and considerable volume of business is reported. It has been intimated that the low gasoline markets may be influential in causing refiners to work harder on their lubricating oil merchandising.

Gas Oils and Fuel Oils

Fuel oils and gas oils show moderate advances in price in most cases and are showing additional strength all along the

(Continued on Page 81)

East Coast Markets Are Unsatisfactory

Weakness in Export Gasoline Following Easing Off in Mid-Continent Motor Fuel Market Causes Bearish Sentiment

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Sept. 28.—Weakness in export gasoline markets, following an easing off in the position of the Mid-Continent motor fuel market, has created some uneasiness in East Coast refined markets, and while posted prices for gasoline have not been changed in this area, market sentiment has turned bearish. Considerable concern has been expressed in eastern oil circles over the continued heavy refinery operations in the face of the expected seasonal slump in consumption, and a general letdown in refinery runs is seen as a necessity for preserving the status quo of the refined products markets. Standard of New Jersey announced during the week that it was placing its refinery workers on a 40-hour week, against 48 hours previously, and other refiners were expected to take similar action, resulting in a general curtailment of refined products output.

Sharp price reductions put into effect in export markets during the week, it is believed, herald a renewed attempt on the part of the American refining trade to recapture from Rumanian and Russian sellers some of the gasoline business which the latter have recently taken from the United States through the medium of low prices. Advices from abroad, however, indicate that these foreign sellers, particularly Rumania, are still willing to meet and beat any Gulf price on motor fuel.

In the remainder of the refined products markets, kerosene and furnace oils were attracting more attention, a sudden spell of cool weather throughout the East Coast area having materially stimulated demand for heating oils. Cylinder oils, particularly bright stocks, were showing firmness, with refiners definitely strong in their price views on oils for both prompt and near-by delivery.

Refinery Gasoline

Principal factors in the New York harbor market are quoting U. S. Motor gasoline at 6 cents per gallon, in tank car lots, f.o.b. refinery terminals, the only exceptions being Warner Quinlan at 6¼ cents, and Republic Oil, marketing East Texas gasoline, at 5¾ cents per gallon.

Gallonage has held up exceptionally well throughout the week, notwithstanding the cooler weather, and leading sellers report that aggregate volume is fully up to that for this time last year.

While local prices appear to be holding steady, on the surface, the undertone is less firm than has previously been the case, and unless the weather should continue unusually favorable, and refinery operations here show a drastic decline, it is not believed that the market can be held at the 6-cent level very long. Some evidences of shading have already developed, and with the Gulf market selling lower, principal refiners operating in East Coast territory, it is believed, will be forced to lower their refinery gasoline prices shortly to protect home markets against shipments of low-priced Gulf Coast gasoline.

A constructive phase of the eastern market situation, however, is seen in the fact that refiners in this area continue to draw against stocks to take care of current business. This was reflected in a further decline in refinery gasoline holdings during the week ending September 19, stocks on that date totaling 3,935,000 bbls., as compared with 4,253,000 bbls. at the close of the previous week. Thus, the statistical position of the gasoline market in this area is fairly strong, but the fear that this balance may be upset by continued heavy refinery operations is nevertheless present, and is responsible in large measure for current uneasiness in trade circles.

Tank Wagon Gasoline

There was a fairly steady tone prevalent in eastern tank wagon markets throughout the week, this division of the trade not as yet having reflected the nervousness so apparent in the refinery gasoline market.

Gallonage was well maintained throughout the East last week, the weather continuing clear, although slightly cooler, and motoring apparently holding up exceptionally well for this season of the year.

Price cutting at retail stations has been greatly minimized in Atlantic seaboard territory during the past several weeks, and barring any sudden break in the refinery market which might flood the retail trade with cheap gasoline, leading marketers believe that they have the retail situation in this territory rather well in hand.

Efforts are being made to obtain general backing of the industry's code of ethics, and substantial progress is believed to have been made in that direction already.

Kerosene

A stronger feeling developed in the refinery kerosene market last week, and at the close of the period principal sellers were rather firm at 5 cents per gallon in tank car lots, f.o.b. terminals, as compared with a general market of 4¾ to 5 cents for 41-43 water white at the close of the previous week. Cooler weather has stimulated demand, and refiners look for heavy consumption during the fall months.

A quickening in activity in tank wagon kerosene markets has followed the cooler weather throughout the East, and gallonage is steadily picking up. Prices remain steady and unchanged in tank wagon markets.

Furnace Oil

Consumers are beginning to take deliveries of furnace oil against seasonal contracts, and this is being reflected in a broadening in activity in refinery markets. Refiners continue to quote domestic heating oil, minimum 32 gravity, at 3½ cents per gallon, f.o.b. refineries, in tank car lots. Retail furnace oil contracts are unchanged.

Approximately 200,000 bbls. of furnace oil are now afloat from California for East Coast ports, and further shipments are looked for over the season. In addition, considerable furnace oil will be moved from Gulf Coast ports to the north Atlantic seaboard this winter, one prominent independent Pennsylvania company being reported this week to have closed a contract for 30,000,000 gallons of Gulf Coast heating oil for delivery over the winter months. This oil is expected to move by tanker to Philadelphia for tank car distribution from that point.

Fuel Oil

Laying up of additional ships normally engaged in the transatlantic trade has cut further into marine consumption of bunker fuel oil at New York, and the market tone is less strong. The posted price for bunker "C" holds unchanged at 70 cents a barrel, in bulk, at terminals, but there is less talk now regarding the possibility of an 80-cent market before the close of 1931.

Bunker oil from the Gulf can be laid down at 15 cents per barrel and more under the posted price at East Coast ports, and renewed market difficulty resulting from this price cutting is looked for. The Gulf market in fact, promises to be a trouble maker for some time to come, sellers at that point being reported in at least one instance to be bunkering steamship lines which usually take all of their bunker oil on contract from the large integrated companies with headquarters in the East.

Domestic consumption of heavy fuel oil is showing a seasonal increase, but considerable price competition is reported on short business, Philadelphia in particular being a hotbed of competition in this respect at the moment.

Gas Oil

The ending of daylight saving in the East last week signalized an appreciable increase in gas oil contract withdrawals on the part of the large natural gas companies, and refinery shipments showed some increase. The posted price for 28 plus recycled gas oil holds unchanged at 4 cents per gallon in tank car lots at refineries.

Interests here which had feared the loss of considerable gas oil business due to the growing production of natural gas in western New York gas fields are now more optimistic over the situation, and believe that until economic conditions showed a very pronounced change for the better plans for the extension of natural gas service to markets now served by the manufactured products will be held in abeyance in many instances.

Diesel Oil

Refiners continue to quote Diesel oil unchanged at $1.40 per barrel in bulk at refinery terminals. There has been a well-maintained demand for Diesel oil from marine interests, the lay-ups of vessels by the various lines thus far having involved liners using bunker "C" oil in most instances. Operating economies presented by the Diesel burners, it is believed in shipping circles, will keep most of this class of vessels in service.

Domestic demand for Diesel oil was quiet along routine lines throughout the week.

Lubs

No further price changes developed in the cylinder oil market during the week, but the undertone is steady to strong and further advances in quotations are indicated in postings received from refiners by operators in the local trade. Demand continues well maintained.

Industrial lub movement is holding about steady, recent gains in consumption apparently being maintained. The trade here is very much interested in a proposal made before the recent National Petroleum Association convention that regular statistics covering production, consumption and stocks of industrial grades of lub oils be compiled, not only as an aid in guiding refiners' operations, but as an indication of industrial activity. Such statistics, segregating industrial and automotive lubs, it is felt, would be of far-reaching benefits to refiners and consumers alike.

Paraffin Wax

Light trading continued to feature the wax market last week, with the market undertone still soft and unsettled, but no further price changes developing.

Domestic consumers are again on a hand-to-mouth purchasing basis, and export demand has been interrupted by the monetary crisis in England, and resultant repercussions in other world markets.

Petroleum Exports

Heavy shipments of lub oil and fuel and gas oils featured the local export market during the week ended September 19. The largest shipments reported during the week were 1,200,000 gallons of fuel oil on the Standard of New Jersey tanker for Hamilton, and several large individual shipments of lub oils for British and French ports.

The following table shows principal exports of refined petroleum products from the port of New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Sept. 19	Sept. 12	Sept. 5
Gasoline	215,000	125,000	85,000
Naphtha	440,000	335,000	250,000
Kerosene	463,000	3,000	58,000
Fuel oil	1,610,000	2,000	170,000
Lubricating oil	2,495,000	2,070,000	1,605,000
Petroleum, ref'd.	421,000	650,000	1,519,000
	Pounds		
Petrolatum	13,000		40,000
Paraffin wax	30,000	1,320,000	1,115,000
Refined			75,000
Scale		50,000	220,000
Lubricating grease	420,000	490,000	525,000

Foreign buyers appear to be showing a little more confidence in the price structure of American refined products, particularly cylinder oils, and considerable more inquiry has been reaching traders during the past week, indicating an early expansion in spot business. In general, however, foreign buyers are not disposed to buy far ahead, unsettled economic conditions in the principal countries of Europe acting as a brake on future trading.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended September 19 totaled 1,694,000 bbls., a daily average of 242,000 bbls., against 1,153,000 bbls., a daily average of 164,714 bbls. for the previous week, and a daily average of 209,536 bbls. for the four weeks ended September 19. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	138,000
Boston	123,000
New York	882,000
Philadelphia	272,000
Others	112,000
Total	1,527,000
Daily average	218,143
At Gulf Coast ports—	
New Orleans and Baton Rouge	167,000
Total	167,000
Daily average	23,857
At all United States ports—	
Total	1,694,000
Daily average	242,000
Daily average four weeks	209,536

Distribution of total imports is as follows:

Crude	987,000
Gasoline	113,000
Gas oil	24,000
Fuel oil	570,000

Considerable interest is shown in trade circles in the proposed international accord for the limitation of world crude production. Consummation of such a plan, it is felt, would be immediately reflected in import totals and would have the effect of virtually pegging imports of both crude petroleum and products.

Export Market

Gulf sellers have apparently determined to meet Rumania and Russia at their own game, and export gasoline prices were sharply slashed during the week. Revised quotations are: U. S. Motor, 4½, off one-half cent; 60-62 400 endpoint, 4¾ cents, off three-eighths; 61-63 390 endpoint, 4¾ cents, off one-half cent; and 64-66 375 endpoint, 4¼ cents, off 1¼ cent per gallon. The sharp cut in the latter grade, it is explained, is due both to the desire to meet foreign competition on this grade, which is most in demand at this time, and to current oversupplies of the higher gravity product in refining centers exporting out of the Gulf.

An inquiry for a cargo of between 60,000 and 100,000 bbls. of 64-66 gasoline for October shipment to France was reported in the market during the week. The cargo was finally reported booked at around 4¼ cents per gallon, but it is not yet known whether Gulf or Rumanian sellers got the business. Another

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inquiry, from France, for 4,000 tons of 64-66 was reported during the week, the buyer finally taking 2,000 tons, from Rumania, at a reported price of 4⅝ cents per gallon c.i.f. France. Several small part-cargo inquiries for gasoline for shipment to France were reported in the Gulf market during the week, but up to the time of writing none of this business had been closed, and it appeared likely that the buyers would get their supplies from Rumania.

Kerosene prices remained unchanged at the Gulf throughout the week, with little business being done, and no straight cargoes reported booked.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports during the week ended September 19 totaled 306,000 bbls., a daily average of 43,714 bbls., compared with 248,000 bbls., or 35,428 bbls. per day during the preceding week, and a daily average of 35,642 bbls. for the four weeks ended September 19. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	43,000
Boston	110,000
New York	37,000
Others	36,000
Total	226,000
Daily average	32,286
At Gulf Coast ports—	
All ports	80,000
Total	80,000
Daily average	11,428
At Atlantic and Gulf Coast ports—	
Total	306,000
Daily average	43,714
Daily average four weeks	35,642

Distribution of total California oil receipts is as follows:

Gasoline	246,000
Fuel oil	60,000

All of the week's receipts of 80,000 bbls. at the Gulf consisted of gasoline.

Shipments of California refined products for Atlantic and Gulf Coast ports reported during the week were as follows: 78,300 bbls. of gasoline for Baltimore on the Pat Doheny (Richfield); 93,800 bbls. of furnace oil on the Empire Arrow (Standard of New York); and 103,100 bbls. of furnace oil on the tanker Comet.

Charter Market

The principal development of interest in the tanker charter market during the week was the reported inquiry for both clean and dirty vessels for consecutive voyages over 1932. Part of this inquiry, it is indicated, contemplates the movement of fairly heavy quantities of American crude from Gulf ports to France.

Fixtures reported during the week included the following:

Steamer Katy (Norwegian), 3,961 tons, net, time charter, two months, Gulf/Montreal trade, £2,300, October loading.

Steamer Sheaf Crown (British), 190,000 cases refined products, Gulf to China/Japan, basis 18 cents, October loading.

Motorship Oilreliance (British), 7,000 tons clean, Gulf to United Kingdom/Continent, 9/-, October loading.

Steamer Britta (Norwegian), 3,000 tons, clean, Constanza to Havre, 7/3, October loading.

Steamer Trimountain (American), 9,000 tons, fuel oil, Gulf to Amsterdam, 7/-, October loading.

Motorship Athelcrown (British), 12,000 tons, crude, Aruba to Teneriffe, 6/3, October-November loading.

EAST COAST MARKETS ARE UNSATISFACTORY

(Continued from Page 78)

line. This betterment, obviously, does not apply to the high cold test materials although these are not nearly so plentiful as earlier. Some offers of high cold test 18-22 fuel oil have been made at 17½ to 25 cents a barrel, but there is little or no demand for this material. The zero grade of 18-22 fuel oil is quoted at 27½ to 30 cents a barrel. The 22-26 fuel oil is offered at 27½ to 32½ cents a barrel, with no great quantities of the more desirable material available. There is a comparative scarcity of 28-30 zero fuel oil. This material is offered at 45 to 47½ cents a barrel. The 32-36 industrial gas oil advanced an eighth of a cent to a range of 1⅛ to 1¼ cents; the 32-36 zero gas oil made a similar advance to 1¼ and 1½ cents. Straw distillate remained unchanged at 1⅜ to 1⅝ cents.

ROCKY MOUNTAIN AREA

(Continued from Page 75)

Dome, which has been standing at a total depth of 2,850 feet, is rigging up. Prairie Oil & Gas Co.'s No. 1, SE SE SW, Section 29-27-89, Bunker Hill, has cored and reamed to 4,987 feet in sand.

Fremont County

Kinney-Coastal Oil Co.'s No. 1 Chatteron-Weeks, C SW NE, Section 22-3n-1w, Pilot Butte, is drilling at 3,584 feet in black shale and sand. It is believed to be close to the top of the Muddy, in which a big gas flow was encountered in its No. 1 Dykeman, half a mile to the southwest. Producers & Refiners' No. 10, NE NW SW, Section 14-32-95, Sand Draw, which is to be completed as a gas well in the Frontier, is standing at 5,100 feet waiting for hematite.

MONTANA

Glacier County

Another gas well was completed in the Cut Bank Field in L. B. O'Neil's No. 2 Michaels, C SW NE, Section 33-36-5w, in proven territory. It was drilled to 2,820 feet and gauged 9,000,000 feet from a stray sand. O'Neil is drilling as agent for the Montana Power Co. Other O'Neil operations are as follows: No. 1 Cummings, C SW, Section 22-36-5w, drilling at 600 feet; No. 1 Tetrug, C8L SW, Section 26-36-5w, drilling at 2,400 feet; No. 1 Whetstone, C SE NW, Section 10-35-5w, drilling at 900 feet; No. 1 State, C NE, Section 9-35-5w, drilling at 2,609 feet; No. 1 Peterson, C, Section 21-35-5w, drilling at 2,100 feet; No. 1 Teterud, C SE, Section 35-36-5w, set 6¼-inch at 2,740 feet.

Browning Development Co.'s No. 1 Reickhoff, SE cor. NE, Section 3-34-6w, is waiting for tools.

Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE NE, Section 28-36-12w, Milk River district, is shut down at 2,625 feet to cement cave.

R. C. Tarrant's No. 1 Hogland, NW cor. SW, Section 13-34-6w, Cut Bank district, is spudding at 250 feet.

Carbon County

Ohio Oil Co.'s No. 1 Chapman, C SW SW, Section 2-7s-21, Dry Creek, is drilling at 4,633 feet in the shale break between the first and second Frontier. Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7-22, is shut down at 4,815 feet to repair rotary rig. Considerable gas showed in the cores from the second Frontier.

Rosebud County

Prairie Oil & Gas Co.'s No. 1-XX Contr. 3, NE SW NW, Section 26-10-39, Porcupine Dome, cemented 12½-inch at 2,551 feet, having successfully penetrated the big artesian water horizon in the Kootenai.

Liberty County

Liberty Gas Co.'s No. 1 Corwin, C SW SW, Section 12-36-5e, Bear's Den, is drilling at 600 feet.

The California Co.'s No. 1 Eleanor, SE SE, Section 11-33-6e, Utopia district, is bottomed at 3,244 feet, 20 feet in a true quartz sand, of which the upper 16 feet showed saturation. Before taking over this operation, the hole had been standing full of water for several months and gas which had been showing was drowned out. Swabbing has been in progress in an effort to bring it back.

Toole County

A new operation in the Border Field has been started in the Askalta Oil Co., Ltd.'s No. 2 Farbo, SW SE SE, Section 2-37-4w, which has rig up. Oregon Oil Syndicate's No. 1, SW NE SE, Section 20-36-2e, Barthelote district, is bottomed at 650 feet and fishing for tools.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21, Salt Valley Dome, Grand County, is running 8¼-inch to set at 3,444 feet. The hole has 1,900 feet of oil standing in it. Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Utah County, is drilling at 3,400 feet and reports a show of oil in a thin sand in the Pennsylvanian at 3,380 feet.

IDAHO

R. J. Berry and others' No. 1 Kramlich, Section 5-9n-4w, Crystal Dome, Payette County, is moving in. This is the first test to be drilled for the Ohio Oil Co. on a block of 7,200 acres recently acquired in a deal with the Mountain States Oil & Gas Co. and is near a well drilled which showed for 10,000,000 feet, estimated, at 1,870 feet, but which never was completed.

Pipe Line Runs

Average daily pipe line runs for the week ending September 26:

WYOMING

	Bbls.
Salt Creek	21,590
Big Muddy	1,750
Byron	.....
Dallas-Derby	310
Dutton Creek	.....
Elk Basin	570
Ferris	20
Frannie	260
Grass Creek	3,050
Greybull	.....
Hamilton Dome	940
Hudson	270
LaBarge	1,200
Lance Creek	280
Lost Soldier	3,810
Lovell	.....
Oregon Basin	1,230
Osage	1,180
Pilot Butte	40
Rock River	1,840
Poison Spider	220
Simpson Ridge	50
South Casper	.....
Teapot	10
Warm Springs	.....
Total Wyoming	36,620

MONTANA

Buckley-Border	540
Cat Creek	910
Dry Creek	310
Kevin Sunburst	4,260
Lake Basin	70
Pondera	1,810
Total Montana	7,900

COLORADO

Florence	230
Fort Collins	950
Iles	1,000
Moffat	820
Orchard	640
Rangely	20
Tow Creek	290
Walden	.....
Total Colorado	4,000

NEW MEXICO

Rattlesnake	720
Hogback	500
Table Mesa	80
Artesia	296
Cap Rock	635
Getty	.....
Hobbs	36,947
Jal	1,158
Lea City	1,845
Eunice	489
Total New Mexico	42,670
Total Rocky Mountain area	91,190
Total previous week	93,014
Difference	1,824

PRODUCTION PRACTICES IN EAST TEXAS AREA

(Continued from Page 57)

tween the old and the new specification is that the new revised specification provides for a finished interchangeable stave instead of the flat sheet layout as given in the old specification. The fact should be emphasized that no change has been made in the original bolt circle or in the general sizes, all the changes being in the nature of refinement.

Summary

1. Every flowing well should have a permanent line with a back pressure valve installed just ahead of gate valve, so that the well pressure will keep it closed. This line should extend a safe distance from well, at least 100 feet. If connections should be broken off and well get wild, or catch fire, a pump can be attached to line and water circulated through casing, killing well and at the same time extinguishing the blaze.

2. All gate valves, stuffing boxes, etc., should be gone over with a wrench, all nuts tightened and thoroughly inspected before swabbing of well begins. This is important for either second-hand or new valves.

3. A flow line from the christmas tree to a pit of sufficient size to hold the fluid necessary to clean the well should be laid a safe distance, at least 100 feet, from well and boilers. This eliminates danger of fire and keeps the rig clean of oil and mud.

4. After well is completed as a producer, wood derricks should be dismantled. If necessary to leave them as pumping derricks, the floor should be removed, cellar filled with dirt and all flow lines should be put underneath the derrick sill. This prevents breaking of connections if the derrick should blow down. All debris should be removed, the ground smoothed, the lower well fittings covered with earth, all other connections protected with guard rails and grass and weeds kept away from within 50 feet of the well.

5. All tanks should be equipped with vent lines to carry off vapors to a safe distance from tanks or buildings.

6. Walkways for stock tank should be erected alongside of tank as a protection for pumpers and gaugers from gas.

7. Sucker rods should be suspended from rod hanger in derrick. In this manner they are kept straight with no chance of kinking and it also keeps them free from grit and dirt.

8. Pressure gauges should never be installed on christmas tree until after the well is thoroughly cleaned. The majority of gauges on wells in East Texas do not register correctly on account of being filled with drilling mud while washing well.

TEXAS INDEPENDENTS TO TYLER

The semiannual convention of the Independent Petroleum Association of Texas will be held in Tyler October 19. The convention this year will be in the nature of a tariff conclave. Tom E. Cranfill, of Dallas, is president, and Claude C. Wild of Fort Worth vice president of the association.

OIL MAN'S CALENDAR

OCTOBER

2-4—Houston, Tex., Petroleum Division, American Institute of Mining and Metallurgical Engineers.

7-8—Detroit, Mich., Society of Automotive Engineers, Book-Cadillac Hotel.

8-9—Tulsa, Okla., Mid-Continent Road Oil Congress.

12-15—Birmingham, Ala., U. S. Good Roads Association Convention, Tutwiler Hotel.

12-16—Chicago, Natoinal Safety Council.

12-16—Atlantic City, N. J., American Gas Association.

14-16—Pittsburgh, Pa., Society of Industrial Engineers.

27-29—Washington, D. C., S.A.E. National Transportation and Maintenance Committee, Shoreham Hotel.

29-30—Kansas City, Big Four State Oil Jobbers Association, Hotel President.

29-30—Roanoke, Va., Virginia Oil Men's Association, Patrick Henry Hotel.

NOVEMBER

10-12—Chicago, Twelfth Annual Meeting, American Petroleum Institute, Stevens Hotel.

16-21—Pittsburgh, Pa., Third International Conference on Bituminous Coal, Carnegie Institute.

30-Dec. 4—New York, Annual Meeting, American Society of Mechanical Engineers.

DECEMBER

2-3—Indianapolis, Ind., Indiana Petroleum Association, Hotel Severin.

7-12—Atlantic City, N. J., Trade Show, Motor and Equipment—National Standard Parts Associations.

9-11—Atlantic City, N. J., American Institute of Chemical Engineers.

9-11—Omaha, Neb., Nebraska Petroleum Marketers, Hotel Paxton.

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

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DEEP under his muddy waters . . . down in the slush and slime . . . what is Old Man River doing to your pipe line?

Is he biting into it with swiftly destructive corrosion? Is he wearing it away with sharp, abrasive sands? Is he weakening it with the boulders he hurls in spring freshets?

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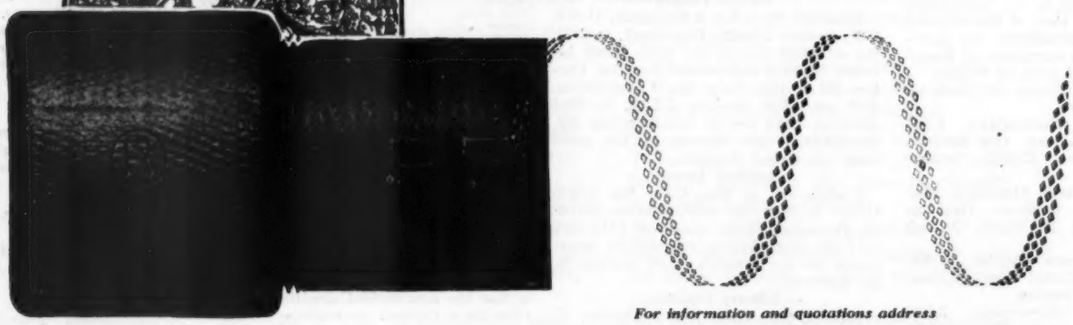

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Superior Tube Company International Supply Company
Our own stocks at Houston, Texas

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 26)

Saunders et al's No. 2 Sullivan, 822 ft. from W and 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Will plug back to 3,275 ft. and shoot.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9 H.&G.N. Sur. ..... Rig up and S.D.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. ..... Location.
Quicksand Oil Co.'s No. 1 Chapman, 250 ft. from N and E, Sec. 69, Blk. 35, H.&G.N. Sur. ..... Location.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. ..... S.D. 450 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... S.D. 3,016 ft.
Smith & Daniels' No. 3 Pitcher, 990 ft. from S and 330 ft. from E, Sec. 19, Blk. M-21, T.C.R.R. Sur. ..... Rig.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.D. 3,115 ft.
Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, L&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Gulf Prod. Co.'s No. 1 Burnett, 330 ft. from N and W, Sec. 356, Blk. 44, H.&T.C. Sur. ..... Drlg. 500 ft.
Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Location.
Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.
Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.
Texhoma Nat. Gas Co.'s No. 1 Coon-Sneed, center Sec. 8, Blk. 6-T, T.&N.O. Sur. ..... Location.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.
Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. 8, G.C.&S.F. Sur. ..... Drlg. 1,855 ft.

POTTER COUNTY

Red River Gas Co.'s No. 6-A Bivins, 1,344 ft. S, 1,089 ft. W, SE, Sec. 37, Blk. M-20, G.&M. Sur. ..... Gas show 2,255 ft.; cmtd. 8-in. csg. 2,330 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... S.D. 1,300 ft.
Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... S.D. 2,690 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. ..... S.D. for 6-in. csg. at 2,150 ft.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 25)

DELTA COUNTY

D. S. Hood's No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur. ..... Shut down 1,559 ft.

ELLIS COUNTY

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 510 ft. from S of Orland ..... Shut down 1,435 ft.

FREESTONE COUNTY

Raley and Clark's No. 1 McLancaster (Pampler), 150 ft. from E of W line and center of N and S line B. Avant Sur. ..... Derrick.

GREGG COUNTY

N. M. Acre et al's No. 1 S. J. Boles, 16 ft. S and 153 ft. E of SE cor. of William Carleton Sur. but in Carl Rhodes Sur. ..... Drlg. 2,700 ft.; top pay 2,531 ft.
Artic Petroleum Co.'s No. 1 King, 57 ft. S of most northerly NW cor. and 104 ft. E at right angles in 2-ac. tract, Chisum Sur. ..... Rig up.
Atlantic Prod. Co.'s No. 1 J. J. Fuller, 394 ft. from E and 843 ft. from S of 50-ac. tract and lease, Mowery Irwin Sur. ..... Rig up.
Barnsdall Oil Co.'s No. 1 G. E. Adams, 1,150 ft. from S and 3,720 ft. from W of G. W. Hooper Sur. ..... Derrick.
Barnsdall Oil Co.'s No. 1 Ferguson, 104 ft. from S and 150 ft. from E of 37-ac. tract in H. A. Hoket Sur. ..... Drlg. 500 ft.
Bagby et al's No. 1 Key, 1,080 ft. from S and 365 ft. from E of Rigsby Sur. ..... Derrick.
Bramlette's No. 1 Goforth, 170 ft. due N of NW cor. of Sun-Hilburn-Lloyd lease in Chisum Sur. ..... Rigging up.
Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,540 ft. from S of H. A. Holdt Sur. ..... Derrick.
M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Derrick.
Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur. ..... Derrick.
Campbell and Lee's No. 1 A. Johnson, 170 ft. from N line and 124 ft. from E line of 11-ac. lease in the M. Dillard Sur. ..... Set 10-in. csg. 886 ft.
Columbia Oil & Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur. ..... Derrick.
Continental Oil Co.'s No. 1 J. J. Flewellen, 359 ft. from N and 949 ft. from E of 200-ac. lease, Marshall Mann Sur. ..... Location.
Charles Davidson et al's No. 1 Paul Jones, 7,000 ft. from most southerly N line and 3,600 ft. from W, W. P. Chisum Sur. ..... Washing to bottom; T. D. 3,666 ft.
Eastland Oil & Gas Co.'s No. 1 B. B. Sparks, 150 ft. from N and 150 ft. from W of E 50 acres of 100-ac. tract, Harvey R. Kirk Sur. ..... Shut down 3,240 ft.
Empire Gas & Fuel Co.'s No. 1 Jeter, 440 ft. from E and 200 ft. N of right of way, Wm. Tyndale Sur. ..... Drlg. 845 ft.
Dr. J. C. Falvey et al's No. 1 fee, 150 ft. from S and 150 ft. from W of 58-ac. tract, Marshall Mann Sur. ..... Shut down 3,600 ft.
Feagan & Salmon's No. 1 Thornton, 300 ft. E of Oriental Oil Co.'s No. 1 Alexander ..... Location.
F. H. E. Oil Co.'s No. 1 Clements, C of 10-ac. tract, in Rhodes Sur. ..... Oil sand 3,558 ft.; T. D. 3,594 ft.
Glasscock's No. 1 Jones, 150 ft. from S and W of 65-ac. tract, in Chisum Sur. ..... Derrick.
Grossy et al's No. 1 Morgan, 325 ft. from N and 900 ft. of Martha Dillard Sur. ..... Derrick.
Greenwood & Josey's No. 1 Spurrier, 438 ft. from S and center E and W of 3-ac. lease, Wm. Castleberry Sur. ..... Drlg. 3,250 ft.
Greer's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 45-ac. lease, 5,700 ft. from E and 550 ft. from N of survey, Henry Hathaway Sur. ..... Drlg. 3,250 ft.
Gulf Prod. Co.'s No. 1 Fonville, 330 ft. from S and E of 100-ac. lease in Wm. Tyndale Sur. ..... Drlg. 3,390 ft.
Gulf Prod. Co.'s No. 1 Shephard, 330 ft. from S and W of most southerly SW cor. of Rains Sur. ..... Set csg. 3,496 ft.; T. D. 3,497 ft.
Harper Petroleum Corp.'s No. 1 Woodley Jones, 2,000 ft. from N line and 3,900 ft. from E line of William H. Castleberry Sur. ..... Derrick.
Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur. ..... Derrick.
Humble Oil & Refining Co.'s No. 1 J. H. Sheppard, NE cor. of 215-ac. tract in I. Allen Sur. ..... Derrick.
Humble Oil & Refining Co.'s No. 1 J. M. McFarland, 1,400 ft. from N and 449 ft. from W line of 57.5-ac. tract, L. J. Rigsby Sur. ..... Drlg. plug; T. D. 3,667 ft.
Jackson et al's No. 1 fee, 2,040 ft. from N and 2,000 ft. from E of M. Dillard Sur. ..... Drlg. 2,880 ft.
Johnston's No. 1 Williams, 125 ft. from N and W of 3-ac. tract, Van Winkle Sur. ..... Derrick.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur. ..... Rig up and shut down.
Kiltner and Easterling's No. 1 Missie Young, 230 ft. S and 250 ft. E of SW cor. of the H. Edwards Sur. in the C. Rhodes Sur. ..... Drlg. 1,800 ft.
Kimsey-Trimble's No. 1 Griffith Davis, 922 ft. E of N line of Griffith Davis 119.5-ac. tract from NW cor. of same and 145 ft. at right angles, W. P. Chisum Sur. ..... Shut down 3,630 ft.
Lockhart et al's No. 1 Jones, 200 ft. from N and center E and W of 19-ac. lease in Hooper Sur. ..... Rigged up and shut down.
Lone Star Oil Co.'s No. 1 Griffin, C of 2-ac. lease in Van Winkle Sur. ..... Top sand 3,557 ft.; set csg.; T. D. 3,592 ft.
Charles Love et al's No. 1 J. B. Doby, 150 ft. from E and 150 ft. from S of S 6 acres of W 42 acres of 170-ac. tract, W. H. Castleberry Sur. ..... Derrick.
Magnolia Petroleum Co.'s No. 1 Key, 200 ft. from N and 150 ft. from E of 64-ac. lease, John Ruddle Sur. ..... Oil sand 3,540 ft.; run csg.; T. D. 3,546 ft.
Olis, Inc.'s No. 1 Milas, 150 ft. from S and E of tract, John Ruddle Sur. ..... Drlg. 1,400 ft.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur. ..... Derrick.
Selby Oil & Gas Co. and Kistler's No. 2 Snavely, 1,640 ft. from S and 2,440 ft. from E of Wm. Tyndale Sur. ..... Coring 3,576 ft.
H. P. Smith's No. 1 Elder & Son, 141 ft. from W line of lease and center N and S of 8-ac. lease in Van Winkle Sur. ..... Drlg. 1,020 ft.
Earl Sneed et al's No. 1 A. M. Kensel, 293 ft. from N and 260 ft. from W of N 23-ac. lease in 94 acres, H. H. Kirk Sur. ..... Location.
Sun Oil Co.'s No. 1 J. W. Akin, 330 ft. from N and W lines of 25.68-ac. tract in George A. Thomason Sur. ..... Fishing pipe; T. D. 3,450 ft.
Superior Oil Co.'s No. 1 Pritchard, 330 ft. from N and W of 40-ac. lease in Francis Johnson Sur. ..... Lost hole; skid rig 20 ft.
The Texas Company's No. 2 Dickson, 300 ft. from N and W of lease, Wm. McCurry Sur. ..... Drlg. 3,515 ft.
Tidal Oil Co.'s No. 1 Lake Divernia Fish and Game Club, 300 ft. from N and 550 ft. from W lines of tract in William G. Painter Sur. ..... Derrick.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ..... Derrick.
H. M. Wages et al's No. 1 Finley and Thomas, 165 ft. from E and 150 ft. from S of 10-ac. lease, Charles H. Alexander Sur. ..... Shut down 3,200 ft.
Ziegler Oil Co.'s No. 1 L. D. Campbell, 540 ft. from N and 219 ft. from E of 72½-ac. tract, David Ferguson Sur. ..... Derrick.

HENDERSON COUNTY

Seven Wells Corp.'s No. 1 Douglas, 767 ft. from N and 833 ft. from E of tract in K. H. Douglas Sur. ..... Waiting on cement to set 300 ft.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ..... Shut down 105 ft.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-ac. tract in John Shears Sur. ..... Drlg. 2,150 ft.
N. E. Irish's No. 1 Mrs. Byrdie Watters, 2,300 ft. W and 300 ft. S from the NE cor. of I. J. Ellis Sur. ..... Shut down 53 ft.
Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ..... Shut down 620 ft.
Phillips and Phillips' No. 1 Kennedy Bros., 485 varas out of SW cor. of 100-ac. tract, Jose M. Procella Sur. ..... Rig up and shut down.
Snow's No. 1 Harron, 300 ft. out of NE cor. of 327-ac. tract, J. P. Procella Sur. ..... Spudded and shut down 37 ft.

HUNT COUNTY

Foster and Earl's No. 1 Whitney and Clark, 150 ft. out of NW cor. of 50-ac. tract in W. H. Landrum Sur. ..... Spudded and shut down.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignatius Aud Sur. ..... Shut down 4,026 ft.
Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ..... Derrick standing.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract ..... Shut down 1,931 ft.
I. M. Hogg, trustee's No. 1 Stone, 156 ft. W of Highway No. 43 and 160 ft. from N line of survey in R. L. Moody Sur. ..... Shut down 4,978 ft.
Sun Oil Co.'s No. 2 Grayson ..... Shut down 3,741 ft.
Sun Oil Co.'s No. 3 Grayson, 1,320 ft. from NE and 150 ft. from SE of tract, Marguez Sur. ..... Location.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur. ..... Derrick.

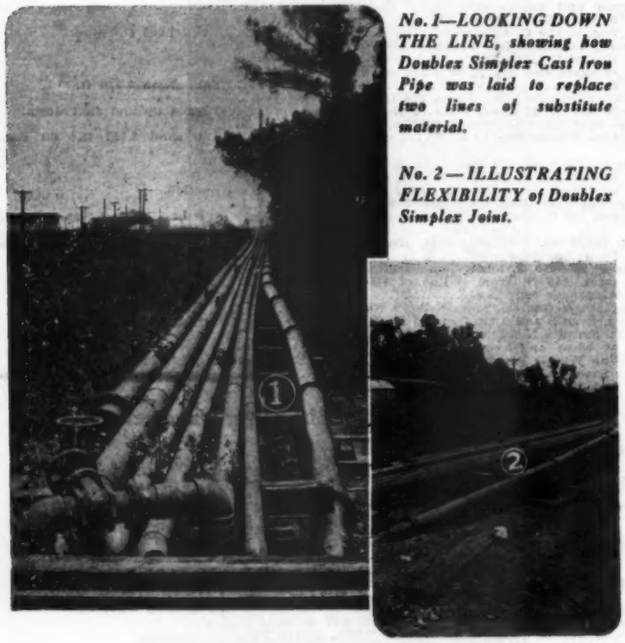
NACOGDOCHES COUNTY

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ..... Shut down 1,605 ft.
Churchill-Armstrong's No. 1 Max W. Hart, 2,640 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur. ..... Derrick.
Foreman and Weller's No. 1 Norris, 60 ft. NW of E line and 420 ft. S of road in 73.5-ac. tract, Hosea Y. Barbo Sur. ..... Derrick.
Foreman et al's No. 1 Robert Mattaner, NW cor. of 520-ac. tract, J. A. Cherino grant ..... Drlg. 32 ft.
Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ..... Trying to pump mud and water out of hole; T. D. 3,012 ft.
Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ..... Shut down 3,930 ft.

how

DOUBLEX SIMPLEX CAST IRON PIPE

Solved a Major Corrosion and Capacity Problem for a Louisiana Refinery



No. 1—LOOKING DOWN THE LINE, showing how Doublex Simplex Cast Iron Pipe was laid to replace two lines of substitute material.

No. 2—ILLUSTRATING FLEXIBILITY of Doublex Simplex Joint.

NEAR New Orleans, La., a refinery pumps water from the Mississippi River for cooling purposes in its plant. Until a 12" Doublex Simplex Cast Iron Pipe line was installed, two 5" lines of a substitute material were employed for this purpose. As is inevitable with substitute material, the two 5" lines fell prey to corrosion, eventually creating a situation which could not be tolerated. Confronted with the problem of securing a pump line which would be unquestionably permanently dependable, the refinery engineers specified a 12" line of Doublex Simplex Cast Iron Pipe, which they knew would end their corrosion problem forever, at the same time affording an increase in the volume of water for additional condensing machinery. The new Doublex Simplex line comprises 1300 feet of pipe and carries about 60 pounds pressure. Photograph No. 2 illustrates the flexibility of the Doublex Simplex Joint compared directly with the two substitute lines which it is replacing. These and other features of this widely used pipe are amplified in our illustrated catalog "Doublex Simplex Cast Iron Pipe" which we will gladly mail you free on request. Simply address Acipco office nearest you.

AMERICAN CAST IRON PIPE CO.

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SAN FRANCISCO CHICAGO KANSAS CITY DALLAS MINNEAPOLIS
LOS ANGELES NEW YORK CITY SEATTLE CLEVELAND

1631R

Scully & Harwell's No. 1 R. L. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ....Shut down 2,442 ft.
Sequia's No. 1 Vanover, 6,072 ft. from N and 6,636 ft. from E of Alford Oliver Sur., E. Boyd E 160-ac. tract ....Drlg. 3,840 ft.
Taylor-Vaughn's No. 1 Dixon Greer, 150 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Herrera Sur. ....Shut down 250 ft.; shale.
Big Indian Oil Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. ....Shut down for water 1,420 ft.

RAINS COUNTY

Berry and Hale's No. 1 Ownsby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ....Preparing to start drlg.; T. D. 1,995 ft.

RED RIVER COUNTY

Royle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 650 ft. E of W line of survey, J. C. Brown Sur. ....Derrick.
Droppleman and Bundy's No. 1 J. W. Cunningham, 250 ft. from the S and 1,088 ft. from the E lines of B. M. Ballard Sur. ....Rig up.
Harris & Joiner's No. 1 E. Howison, 225 ft. S, 185 ft. W of 78-ac. tract, William Humphreys Sur. ....T. D. 3,216 ft.
Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ....Shut down 740 ft.

ROCKWELL COUNTY

J. F. Barron's No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ....Waiting on csg.; T. D. 130 ft.

KILGORE AREA—RUSK COUNTY

Harry Elliott's No. 1 Carroll, 175 ft. from N and 200 ft. from E of 7-ac. tract, W. R. Cook Sur. ....Location.
State Production Co.'s No. 1 Gipson, 630 ft. from N and 175 ft. from E lines of tract in T. Lloyd Sur. ..Top sand 3,787 ft.; T. D. 3,792 ft.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ....Derrick.
Bullock's No. 1 Alford, 1,300 ft. from S and 150 ft. from W of survey, T. J. Moore Sur. ....Shut down 2,953 ft.
Campbell Oil Co.'s No. 1 Compton, 600 ft. from N and W line of Simon Del Rio Sur., 1½ miles NW of Minden ....Derrick.
Golding & Murchison's No. 1 Kelly, 515 ft. N and 410 ft. E of SE cor. of E. E. Moore 200-ac. tract, Cadena Sur. ....Drlg. 850 ft.
Goude & Murray's No. 1 Priddey, C 2½-ac. tract, Overton Townsite, W. T. Tutt Sur. ....Derrick.
C. C. Julian's No. 1 Motley, 730 ft. from N and 1,678 ft. from W of survey, J. T. McDaniels Sur. ....T. D. 191 ft.
Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,856 ft. from E, Dallines Cartimas Sur. ....Shut down 3,300 ft.
H. C. McBride's No. 1 Sue Hale, 150 ft. from S and 150 ft. from W of Sue Hale 38-ac. tract, John Darley Sur. ....Set 12½-in. csg. 212 ft.
Nat Saddler's No. 1 Ed Sparks, 350 ft. from E. 150 ft. from S of survey, L. C. Riggs Sur. ....Shut down 2,200 ft.
Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ....Rig blew down.
Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ....Drlg. new hole 900 ft.

SMITH COUNTY

Adams and Berry's No. 1 T. O. Wright, 150 ft. from N line and 150 ft. from E line of Juan Vargus Sur. ....Set csg. 3,630 ft.
Bailey Gaunce et al's No. 1 S. S. Cook, 150 ft. from S and 150 ft. from W of S. S. Cook 20-ac. tract in 139-ac. tract, Juan Vargus Sur. ....Shut down 2,850 ft.
Ben Banner's No. 1 Lee White, 926 ft. from E line and 1,200 ft. from N line of Abraham H. Scott Sur. ....Shut down 3,400 ft. (corrected).
Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 320-ac. tract, Calloway Dean Sur. ....Derrick.
Rex Cannon et al's No. 1 Buella Meansa ....Derrick.
Cotton Belt Oil Co.'s No. 1 C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. ....Shut down 4,002 ft.
Deason Oil Co.'s No. 1 T. O. Wright, 1,440 ft. from N and 250 ft. from W of T. O. Wright 86-ac. tract, Juan Vargus Sur. ....Set 6-in. at 3,660 ft.
East Texas Investment Co.'s No. 1 Colored Methodist Church, James Jordan Sur. ....Shut down 2,408 ft.
Hancock and McCarthey's No. 1 J. C. Cross, 200 ft. from E of road and 200 ft. N of S line of survey on a 13-ac. tract, Burbridge Sur. ....Shut down 72 ft.
McCarthy and Hancock's No. 1 Nellie Taylor, 250 ft. out of SW cor. of 73-ac. Taylor tract, F. M. Taylor Sur. ....Derrick.
Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Sharp, 580 ft. W and 1,170 ft. from S of most northerly NE cor. 482.67-ac. tract in the M. De Los Santos Sur. ....Set 6⅝-in. csg. 3,645 ft.
Miller et al's No. 1 McDavid ....Spudded and shut down.
Morrison's No. 1 I. Roy, 330 ft. N and E from SW cor. of 87-ac. tract in Henry Cools Sur. ....Shut down 3,900 ft.
Phillips & Phillips' No. 1 Anna Morrison ....Set 10-in. csg. 33 ft.; shut down.
Republic Production Co.'s No. 1 Scroggins, 1,150 ft. from N and 160 ft. from W lines of W. W. Simms Sur. on 10.7-ac. lease ....Drlg. 3,010 ft.
M. M. Rowand et al's No. 1 Gibbons, 1,800 varas from W and 260 varas S of river (which is N line of survey), J. M. Garcia Sur. ....Shut down 3,610 ft.
Smith & Son's No. 1 S. S. Cooke, 1,875 ft. N and 231 ft. W from SW cor. D. Wright tract, Juan Vargus Sur. ....Drlg. 2,852 ft.
Sun Oil Co.'s No. 2 J. J. Denton, 250 ft. from N line and 425 ft. from E line of tract in the Juan Vargus Sur. ....Testing 3,711 ft.
The Texas Company's No. 3 Blackwell, 330 ft. from S and E lines of 160-ac. tract in James Jordan Sur. ....Location.
Gulf States Development Co.'s No. 1 S. S. Cooke, C of 5-ac. tract and lease in James Jordan Sur. ....Shut down 3,710 ft.
Tytex Oil Co.'s No. 1 Alex Weidert, 2,030 ft. from S and 525 ft. from E lines of Franklin T. Bodenheimer Sur. ....Derrick.
Vitex No. 1 Trion, 150 ft. from S and E lines of 56-ac. tract in Mary Hughes Sur. ....Shut down 1,195 ft.
Yarber et al's No. 1 R. G. Wright ....Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ....Drlg. 3,266 ft. (corrected depth).
Joiner et al's No. 1 Clayton Brown ....Shut down 2,250 ft.
Venza Oil Co.'s No. 1 McGill, 450 ft. from S and 662 ft. from W of H. C. Riggs Sur. ....Fishing for bit 5,960 ft.

UPSHUR COUNTY

Granite Oil Trust Co.'s No. 1 Victory, 3,200 ft. from W and 900 ft. from S lines of E. A. J. Evans Sur. ....Drlg. 2,980 ft.
Alma Petroleum Co.'s No. 1 J. W. L. Yount ....Waiting on cement 3,677 ft.
Cockrell et al's No. 1 C. A. Lee, 150 ft. from S and 150 ft. E of 26½-ac. tract, W. L. Palmer Sur. ....Derrick.
Callahan et al's No. 1 Lee R. Kay, 660 ft. from N and E lines of Charles O'Neal Sur. ....Derrick.
Calhoun et al's No. 1 J. R. Penn, 265 ft. from S line and E line of Penn 104-ac. tract, Joseph Manning Sur. ....Shut down 3,718 ft.
Cole and Butler's No. 1 D. F. Guest, 300 ft. out of NE cor. of Guest 129-ac. tract and survey ....Derrick.

Compton and Lotts' No. 1 J. C. Wilaford, 300 ft. from E line and 2,700 ft. from S line of survey, L. Lomsollas Sur. ..... Drlg. 2,860 ft.

Daisy Oil & Gas Co.'s No. 1 B. F. Phillips, 300 ft. out of SE cor. of 64-ac. tract, P. Whitestone Sur. ..... Cored sand; T. D. 3,712 ft.

Home Oil Co.'s No. 1 F. D. Futrell, 150 ft. out of SW cor. and 520 ft. from E and 400 ft. from S line of 7.6-ac. tract, A. Lumbrara Sur., south of Gilmer ..... Drlg. 3,571 ft.

Humble Oil & Refining Co.'s No. 1 Reves, 450 ft. from S and 324 ft. of 28-ac. tract in G. W. Hooper Sur. .... Drlg. 3,103 ft.

Humble Oil & Refining Co.'s No. 1 Johnson, 330 ft. from S and W of 100-ac. tract of G. W. Hooper Sur. ..... Drlg. 3,525 ft.

A. D. King's No. 1 Lloyd, 156 ft. from N line of survey and 288 ft. from E line of 4-ac. tract, D. Sanches Sur. ..... Drlg. 3,673 ft.

Tytex Oil Co.'s No. 1 C. B. Jones, 300 ft. from N and 165 ft. from E lines of 60-ac. tract in the Henry W. Augustine Sur. ..... Showing oil 3,648-54 ft.; ran drill pipe test; set packer 3,574 and 2 jars oil and rotary mud.

Smith Bros.' No. 1 J. W. Davis, 400 ft. from N and 800 ft. from W lines of S 200 acres of J. W. Davis 320-ac. tract in John Burleson Sur. ..... Set 10-in. at 97 ft.

J. R. Smith's No. 1 J. B. Webb, 200 ft. N and 489 ft. W of SE cor. of W 20 acres of 71-ac. tract, G. W. Hooper Sur. ..... Derrick.

Sorrels & Duffey's No. 1 J. W. Wooden, 200 ft. from E and 200 ft. S of survey, Isham Williams Sur. ..... Coring 3,650 ft.

Sun Oil Co.'s No. 2 Watkins, 1,320 ft. N and 1,360 ft. W of most southerly SE cor., Jose Rinoda Sur. ..... Shut down 2,332 ft.

Wheeler et al's No. 1 Webb, 300 ft. from N and 100 ft. E of road, approximately 4,840 ft. from W and 1,920 ft. from N of Hooper Sur. ..... Fishing 1,100 ft.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 990 ft. out of NE cor. of Hubbard 325-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. ..... Shut down 1,020 ft.

Hart Petroleum Corp.'s No. 1 M. L. Cox, 1,785 ft. N of S line and 524 ft. E of W line of Cox 300-ac. tract in Nugent Headright Sur. ..... Shut down 2,035 ft.

Kelly Oil & Gas Co.'s No. 1 Lomsford, center of Lomsford tract, John Conner Sur. ..... Shut down 2,300 ft.

Nell McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ..... Shut down 2,450 ft.

W. P. Palmer et al's No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ..... Shut down 3,000 ft.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... Shut down 2,860 ft.

WOOD COUNTY

Brennan and Wood's No. 1 L. W. Mings, 300 ft. from NW cor. of survey and tract, Moses Stripling Sur. .. Derrick.

Pure Oil Co.'s No. 4 Mrs. W. A. York, 890 ft. W of E line and 660 ft. S of N line of Mrs. W. A. York 50-ac. tract, John Walling Sur. ..... Rigging up.

Wood County Dev. Co.'s No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. ..... Shut down 2,005 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 26)

Cranfill & Reynolds' No. 1 George, 400 ft. from N and 380 ft. from E, Sec. 200, Blk. 1, B.B.&C. Sur. ..... Total depth 2,632 ft.; bailing hole; set 8-in. at 2,630 ft.

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-8, P.S.L. Sur. ..... Total depth 4,630 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Total depth 3,202 ft.

HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur... Spudded and shut down.

Merrick & Lamb's No. 2 Chalk, 990 ft. from the N and W lines of Sec. 125, Blk. 29, W.&M.W.R.R. Sur. ..... Drlg. 1,310 ft.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,081, Blk. 28, H.&T.C. Sur. ..... Drlg. 2,765 ft.

Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 709, J. P. Imhoff Sur. ... Shut down 463 ft.

Ellis et al's No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur. ..... Shut down 1,500 ft.

Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Drlg. 6,240 ft.

Straughn & Adkins Bros.' No. 1 Lee, 1,080 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... Shut down 725 ft.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... Shut down 1,005 ft.

LOVING COUNTY

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 53, T.&P. Sur. ..... Shut down 810 ft.

Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Drlg. 1,335 ft.

Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... Shut down 2,500 ft.

Lewis & Siegel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur.... Spudded and shut down.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,385 ft.

Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Shut down 1,400 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor. Sec. 133, E.L.R.R. Sur. ..... Shut down 2,860 ft.

PECOS COUNTY

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... Total depth 1,300 ft.

Slaughter et al's No. 1 Sun Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, I.&G.N. Sur. ... Location.

REAGAN COUNTY

Carl Cromwell et al's No. 1 University, 1,320 ft. from S line and 1,320 ft. from E line of Sec. 4, University Blk. 7 ..... Spudded 55 ft.

Big Lake Oil Co.'s No. 6-C University, 1,370 ft. from S and 1,000 ft. from E Sec. 12, Blk. 2 ..... Location.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 58, Cassel's Sur. ..... Spudded and shut down.

James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 72 ..... Drlg. 2,905 ft.

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twn. 10, T.&P. Sur.... Shut down 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... Fishing underreamer lugs; total depth 2,556 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Shut down 4,500 ft., contract depth.

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Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Cementing cave 4,265 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,058 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, E.&T.C. Sur. ..... Shut down 5,041 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 63, Blk. 2, H.&G.N. Sur. ..... Spudded and shut down.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... Shut down 3,500 ft.
Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur. ..... Show oil 1,798, 1,820, 1,850 ft.; shut down 2,500 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur... Shut down 6,120 ft.
Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-3, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 2,545 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 1,650 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. ... Shut down 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S Grant Sur No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Cosby Prod. & Roy. Co.'s No. 1 Lane, 2,310 ft. from S and 1,650 ft. from W Sec. 36, Blk. 1, M.-K.-T. Sur... Drlg. 2,215 ft.
Rankin et al's No. 1 Cordova Union Land, 660 ft. from N and E Sec. 6, G.C.&S.F. Sur., 1¼ miles S of Rankin ..... Drlg. 3,558 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Shut down 6,780 ft.

WARD COUNTY

Boogher's No. 1 fee, 225 ft. from SE and 3,553 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 2,111 ft.
Bradford-Bentley's No. 1 Beatty, 330 ft. from SW and NW of Sec. 3, Blk. 34, H.&T.C. Sur. ..... Location.
Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 32, H.&T.C. Sur... Total depth 2,263 ft.; to run 5 3/16-in. casing.
Central Oil & Gas Co.'s No. 1 Barrow, 330 ft. from NW and 1,263 ft. from SW Sec. 55, J. W. Jackson Sur. ..... Shut down 1,960 ft.
H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW Sec. 12, Blk. 5, H.&T.C. Sur. ..... Spudded and shut down.
Gulf Prod. Co.'s No. 3 O'Brien, 2,310 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur... Drlg. 2,692 ft.
Hankinson et al's No. 1 Emery, 3,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur. ..... Shut down 2,238 ft.
Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 715 ft.
R. F. Owens' No. 1 Lee, 1,344 ft. from NW and 4,533 ft. from SW Sec. 1, J. Howe Sur. ..... Spudded and shut down.
Peck & Fuglar's No. 1 Merritt, 3,063 ft. from NE and 1,698 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,028 ft.
Prairie Oil & Gas Co.'s No. 1 Edmonson, 330 ft. from NW and 2,310 ft. from SW of Sec. 23, Blk. 5, H.& T.C. Sur. ..... Material.
Prairie Oil & Gas Co.'s No. 2 Edmonson, 330 ft. from NW and SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Location.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 32, Blk. A, G.M.M.B.&A. Sur. ..... Shut down 3,602 ft.
Rexford et al's No. 2 Johnson, 2,300 ft. from SE and 4,450 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,795 ft.
Paul Ryan et al's No. 1 J. S. Reynolds, 4,110 ft. from NE line and 150 ft. from NW line, Sec. 12, Blk. 5, H.&T.C. Sur. ..... Shut down 1,510 ft.
Stanolind Oil & Gas Co.'s No. 1 Brown, 330 ft. from NW and SW Sec. 26, Blk. B-29 ..... Rigging up.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Shut down 4,545 ft.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ..... Shut down 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ..... Shut down 4,640 ft.

EAST CENTRAL TEXAS

(Continued from Page 25)

duction 220 bbls. per hour on 2½-inch tubing choke, total depth 3,594 feet. Barnsdall Oil Co.'s No. 6 McGrede, oil sand 3,588-3,603 feet, initial production 12 bbls. per hour on 1-inch choke, total depth 3,603 feet. Houston Oil Co.'s No. 2 Clements, oil sand 3,555-3,605 feet, initial production 90 bbls. per hour on three-fourth inch tubing choke, total depth 3,605 feet.

Humble Oil & Refining Co.'s No. 2 Boles, oil sand 3,588-3,605 feet, initial production 121 bbls. per hour on three-fourths inch tubing choke, total depth 3,642 feet. Same company's No. 2 Carter, oil sand 3,598-3,647 feet, initial production 240 bbls. in three hours on three-fourths inch tubing choke, total depth 3,647 feet. Same company's No. 3 Carter, oil sand 3,593-3,635 feet, initial production 107 bbls. in two hours on three-fourths inch choke, total depth 3,635 feet. Same company's No. 2 Harris, oil sand 3,470-3,525 feet, initial production 243 bbls. in two hours on three-fourths inch tubing choke, total depth 3,525 feet. Lester and Duffield's No. 1 McKinley, oil sand 3,543-66 feet, initial production 200 bbls. per hour on 2½-inch tubing choke, total depth 3,566 feet.

Magnolia Petroleum Co.'s No. 2 Everett, oil sand 3,607-12 feet, initial production 198 bbls. per hour on 1-inch tubing choke, total depth 3,612 feet. Same company's No. 3 Everett, oil sand 3,677-82 feet, initial production 200 bbls. per hour on 1-inch choke, total depth 3,682 feet. Shell Petroleum Corp.'s No. 1 Salters, oil sand 3,702-22 feet, initial production 180 bbls. per hour on 1-inch tubing choke, total depth 3,722 feet.

Sinclair Oil & Gas Co.'s No. 1 Salters, oil sand 3,702-22 feet, initial production 180 bbls. per hour on 1-inch choke, total depth 3,722 feet. Same company's No. 2 Akin, oil sand 3,577-95 feet, initial production 190 bbls. per hour on 2½-inch tubing choke, total depth 3,595 feet.

Atlantic Oil & Production Co.'s No. 1 Duncan, oil sand 3,635-85 feet, initial production 96 bbls. per hour on eleven-sixteenth inch tubing choke, total depth 3,685 feet. Bishop Oil Corp.'s No. 1 Todd, oil sand 3,542-3,600 feet, initial production 95 bbls. per hour on three-fourths inch choke, total depth 3,685 feet. Byrd-Frost's No. 1Adams, oil sand 3,620-40 feet, initial production 105 bbls. per hour on three-fourth inch choke, total depth 3,640 feet. Citizens Oil Co.'s (Gladewater Oil Co.) No. 1 School lot, oil sand 3,610-20 feet, initial production 133 bbls. per hour on 1-inch tubing choke, total depth 3,620 feet. Delaney and Stoddard's No. 2 McKinley, oil sand 3,597-3,630 feet, initial production 96 bbls. per hour on three-fourths inch tubing choke, total depth 3,630 feet.

East Texas Refining Co.'s No. 1 Castleberry, oil sand 3,591-3,613 feet, initial production 180 bbls. per hour on 2½-inch tubing choke, total depth 3,613 feet. Hamil and Smith's No. 2 Meyers, oil sand 3,514-26 feet, initial production 170 bbls. per hour on 1-inch tubing choke, total depth 3,526 feet. P. L. Hoffman and others' No. 1 Meyers, oil sand 3,530-50 feet, initial production 179 bbls. per hour on 1-inch choke, total depth 3,550 feet. Mook-The Texas Oil Company's No. 2 Rodden, oil sand 3,663-86 feet, initial production 94 bbls. per hour on three-fourths inch tubing choke, total depth 3,686 feet. National Oil Co. and other's No. 1 Johnson, oil sand 3,595-3,602 feet, initial production 110 bbls. per hour on three-fourths inch choke, total depth 3,602 feet.

Petroleum Pipe Line Storage Co.'s No. 1 Kay, oil sand 3,644-58 feet, initial production 186 bbls. per hour on 1-inch tubing choke, total depth 3,658 feet. Same company's No. 1 Tenery, oil sand 3,647-51 feet, initial production 175 bbls. per hour on 1-inch tubing choke, total depth 3,661 feet. Roeser and Pendleton's No. 2 Satterwhite, oil sand 3,687-3,712 feet, initial production 190 bbls. per hour on 2½-inch tubing choke, total depth 3,712 feet. Sinclair Oil & Gas Co.'s No. 3 Akin, oil sand 3,564-87 feet, initial production 185 bbls. per hour on 2½-inch tubing choke, total depth 3,587 feet.

Yount Lee Oil Co.'s No. 1 McGrede, oil sand 3,572-92 feet, initial production 90 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,592 feet. Atlantic-Byrd's No. 4-B S. G. Andrews, top sand 3,611 feet, initial production 190 bbls. per hour through open tubing, total depth 3,620 feet.

Gulf Production Co.'s No. 4 S. G. Andrews, top sand 3,592 feet, initial production 85 bbls. per hour through three-fourths-inch tubing choke, total depth 3,602 feet. Same company's No. 2 S. B. Hall, top sand 3,669 feet, initial production 114 bbls. per hour through three-fourths-inch tubing choke, total depth 3,675 feet. Same company's No. 2 M. T. Cole, top sand 3,542 feet, initial production 115 bbls. per hour through three-fourths-inch tubing choke, total depth 3,565 feet.

Magnolia Petroleum Co.'s No. 3 L. A. Griffin, top sand 3,555 feet, initial production 148 bbls. first 15 minutes, total depth 3,567 feet. Same company's No. 2 W. B. Goyne, abandoned location. Mullendore & Berry's No. 1 A. Spear, top sand 3,540 feet, initial production 225 bbls. per hour through 2½-inch tubing choke, total depth 3,580 feet.

Shell Petroleum Co.'s No. 2 B. Douglass, top sand 3,635 feet, initial production 54 bbls. in 15 minutes, total depth 3,636 feet. Same corporation's No. 2 J. S. King, top sand 3,634 feet, initial production 180 bbls. per hour through 2½-inch tubing choke, total depth 3,636 feet. The Texas Company's No. 1 R. B. Walls, top sand 3,680 feet, initial production 170 bbls. per hour, total depth 3,703 feet.

Rusk County

British American's No. 1 Cooper, top sand 3,618 feet, initial production 135 bbls. per hour, total depth 3,644 feet. Jim Cloud's No. 3 Stone, top sand 3,639 feet, initial production 140 bbls. per hour through open tubing, total depth 3,690 feet. Dapoil's No. 1 Barksdale, top sand 3,693 feet, initial production 140 bbls. per hour, total depth 3,690 feet. Duncan & Holt's No. 1 Cansler, top sand 3,720 feet, initial production 225 bbls. in 1½ hours, total depth 3,780 feet. East Texas Refining Co.'s No. 2 Grissom, top sand 3,672 feet, initial production 225 bbls. per hour open through tubing, total depth 3,681 feet.

East Texas Refining Co.'s No. 1 J. B. Wilson, top sand 3,623 feet, initial production 225 bbls. in 55 minutes, total depth 3,638 feet. Gulf Production Co.'s No. 5 Murphy, top sand 3,754 feet, initial production 165 bbls. through open tubing, total depth 3,780 feet. Haynes Drilling Co.'s No. 3 Lee, top sand 3,608 feet, initial production 170 bbls. per hour through open tubing, total depth 3,636 feet.

Humble Oil & Refining Co.'s No. 4 Blackwell, top sand 3,699 feet, initial production 93 bbls. per hour through three-fourths-inch choke, total depth 3,764 feet. Same company's No. 2 Caldwell, top sand 3,715 feet, initial production 114 bbls. per hour through three-fourths-inch tubing choke, total depth 3,744 feet. Same company's No. 4 J. E. Glover, top sand 3,722 feet, initial production 111 bbls. per hour through three-fourths-inch tubing choke, total depth 3,752 feet. Same company's No. 2 D. C. Joyner, top sand 3,695 feet, initial production 95 bbls. per hour through three-fourths-inch tubing choke, total depth 3,707 feet. Same company's No. 3 W. P. Moore, top sand 3,705 feet, initial production 112 bbls. per hour through three-fourths-inch tubing choke, total depth 3,710 feet.

Gulf Production Co.'s No. 6 Jernigan, top sand 3,683 feet, initial production 129 bbls. through three-fourths-inch tubing choke, total depth 3,694 feet. Pace and others' No. 1 D. Wills, top sand 3,674 feet, initial production 84 bbls. per hour through three-fourths-inch tubing choke, total depth 3,676 feet. Mid-Kansas Oil & Gas Co.'s No. 2 Cross, top sand 3,606 feet, initial production 225 bbls. per hour through open tubing, total depth 3,613 feet. Same company's No. 5 S. H. Moore, top sand 3,655 feet, initial production 120 bbls. per hour, total depth 3,655 feet.

Owenwood Oil Co.'s No. 2 Mullins, top sand 3,757 feet, initial production 120 bbls. per hour through open tubing, total depth 3,772 feet. Pansy Oil Co.'s No. 1 Minchew, top sand 3,777 feet, initial production 700 bbls. per hour through open casing and tubing, total depth 3,787 feet. R. M. V. Oil Co.'s No. 3 Birdwell, top sand 3,606 feet, initial production 250 bbls. per hour through open tubing, total depth 3,680 feet.

Sinclair Oil & Gas Co.'s No. 3 F. B. Wilson, top sand 3,636 feet, initial production 250 bbls. per hour through open tubing, total depth 3,710 feet. Staley and Wynne's No. 1 Hale, top sand 3,595 feet, initial production 65 bbls. per hour through open tubing, total depth 3,710 feet. Stanolind Oil & Gas Co.'s No. 5 O'Quinn, top sand 3,779 feet, initial production 136 bbls. per hour through 1½-inch tubing choke, total depth 3,785 feet. A. M. Sutton and others' No. 1 Wilson, top sand 3,786 feet, initial production 90 bbls. per hour through three-quarters-inch tubing choke, total depth 3,795 feet.

The Texas Company's No. 3 Stone, top sand 3,622 feet, initial production 145 bbls. per hour through open tubing, total depth 3,648 feet. Vitek Oil Co.'s No. 1 Irion, abandoned, total depth 1,200 feet. Reagan and others' No. 1 G. Perry, abandoned location.

Humble Oil & Refining Co.'s No. 46 Crim, top sand 3,640 feet, initial production 111 bbls. per hour through three-quarters-inch tubing choke, total depth 3,644 feet. Same company's No. 8 Christian, abandoned location. Same company's No. 7 Christian, abandoned location. Same company's No. 1 Christian, top sand 3,700 feet, initial production 105 bbls. per hour, total depth 3,710 feet. Same company's No. 2 M. N. Minor, top sand 3,649 feet, initial production 53 bbls. per hour through three-quarters-inch tubing choke, total depth 3,654 feet. Same company's No. 13 J. N. Peterson, top sand 3,612 feet, initial production 122 bbls. per hour through three-quarters-inch tubing choke, total depth 3,654 feet.

Crider and Manley's No. 1 R. A. Motley, abandoned location. Tidal Oil Co.'s No. 2 J. S. King, oil sand 3,563-66 feet, initial production 2,500 bbls. per hour through open tubing, total depth 3,567 feet.

Angelina County

R. O. Moore's No. 1 Abney estate, dry and abandoned, total depth 1,350 feet.

Nacogdoches County

L. E. Trout Oil Co.'s No. 1 E. A. Blount, abandoned.

Wood County

Vitek Oil Co.'s No. 1 Rose Vogel, dry and abandoned, total depth 3,800 feet.

Upshur County

Humble Oil & Refining Co.'s No. 1 Mattox, oil sand 3,625 feet, initial production 100 bbls. per hour on three-quarters-inch tubing choke, total depth 3,671 feet. Magnolia Petroleum Co.'s No. 6

Hampton, oil sand 3,663 feet, initial production 120 bbls. per hour on 1-inch choke, total depth 3,669 feet. Shell Petroleum Corp.'s No. 1 Landers, oil sand 3,699-3,721 feet, initial production 120 bbls. per hour on 2½-inch tubing open, total depth 3,721 feet. T. R. I. Co.'s No. 1 Free, oil sand 3,608-60 feet, initial production 80 bbls. per hour on three-quarters-inch tubing choke, total depth 3,660 feet.

SOUTHWESTERN DISTRICT PRODUCTION MEN MEET

(Continued from Page 14)

Corp., Kilgore, read a paper on "Correct and Incorrect Drilling Practices in East Texas," which represented the observations of many operators in the field, consequently could be accepted as a fairly correct resume of the drilling and completing practices followed throughout the district.

Derrick Construction

One of the main points brought out was the use of wood derricks, which he said should be built in accordance with A.P.I. specifications and should be constructed of only thoroughly seasoned lumber. Many of the derricks in the East Texas fields are constructed of wood, much of this lumber coming direct from the portable saw mills in the surrounding woods before it was thoroughly dried, consequently after standing for some time in the sun and wind the wood suffered severe shrinkage, with the result of many derricks being pulled in and many injured and a few killed. Fewer wood derricks are now being built in the district, the majority of the major companies erecting steel derricks, while some of the small operators and companies are also using steel derricks. Wood derricks were another form of doubtful economy, and in some instances were exceedingly expensive to the owners.

Mr. Alcorn also described the best practice in setting boilers, the inspection and care of same, and the auxiliary equipment used on them, as for instance: the valves. Equipment, drilling methods and completing wells consumed a large part of the paper.

A paper on "Fire Prevention and Protection in East Texas" was delivered by S. L. Manes, safety engineer of the Sun Oil Co., being prepared by M. L. Brown, chairman of the East Texas fire protection committee. Mr. Brown is superintendent of the Sun Oil Co., Tyler, Tex. Due to there having been so many oil well fires in the district, with a resultant heavy loss of life, this subject is an exceptionally interesting one to all operators. Mr. Manes said 28 lives had been taken by fires and explosions in the district within seven months' time, with 29 other fatalities caused by different accidents.

Fire Fighting

The East Texas Field is divided into three districts under plans developed for fire fighting by the fire protection committee: Lathrop district, Kilgore district, Henderson district. This committee is continuing the survey of available fire fighting facilities, according to Mr. Manes, and urges every operator in the East Texas fields to report his facilities to the district chairman. The committee hopes to perfect its organization to the good of all operators and landowners and cities in the district. Seven oil well fires in the district were largely responsible for this organization being formed.

E. Stanley Durward of the Shell Petroleum Corp. followed with a paper on "Extinguishing and Controlling Fire on Bell & Graddy's No. 1 Daniels, Near Kilgore," the well which burned for 26 days. It was finally conquered by tunneling and mudding. Diagrams of surface pipe connections in tunnel and casing connection in tunnel graphically depicted just how the fire-fighting equipment was connected to the tubing and casing for the pumping in of water and mud to snuff out the fire.

Thursday evening the Lufkin Chamber of Commerce tendered a banquet to those in attendance. Speakers were John S. Bonner of the Humble Oil & Refining Co., John R. Suman of the same company, Frank Carothers, Carl A. Young of the American Petroleum Institute, E. Stanley Durward and Richard Morrison of the California Co., and John Reddit of the Lufkin Chamber of Commerce.

COLOMBIA PLANS TO LIBERALIZE OIL LAW

(Continued from Page 14)

The proviso is made, however, that the national government has the right to purchase, at the field or at ports, an amount of privately produced oil equivalent to the percentage of taxation thereon, and at prevailing prices.

Article 6 of bill (Article 51 of oil law) reduces the assessory board from five to three members, and puts them on monthly salary instead of a stipend per meeting.

Article 7 of bill (covering exemptions not carried in Law 37) provides that all crudes produced in Colombia destined for domestic consumption will be free from the payment of royalties or production taxes, provided that the prices, at the refinery, of the refined products derived therefrom be no higher than the average prices on such products throughout the United States.

Americans Interested

The sudden change for the better in official sentiment in Colombia toward foreign development of Colombia's oil resources has aroused considerable interest among American oil companies affected, and the belief is held here that following passage of the modifications to Oil Law 37 additional negotiations for the ironing out of some of the other alleged inequitable provisions of the Colombian oil laws may be undertaken with some hope of success.

With an apparently determined move on foot to reach some international accord for world proration of crude output, the Colombian government has changed its attitude toward foreign oil companies at the last minute. Proponents of a world conservation agreement has been planning on a continuance of the status quo in Colombia, and unless an early adjustment of disputed provisions in that country's oil laws is consummated, there is a strong possibility that a world proration plan may be decided upon and put into effect with Colombia on the sidelines. Consideration of this, it is believed, will greatly influence Colombian legislators in their attitude toward development of that country's oil resources.

While a final settlement of legislative difficulties in Colombia will not send the American producing industry into rhapsodies, Colombia presents little possibility as an immediate "menace" to the world oil position. Producing possibilities have been proved up in some sections of the country, and competent geologists believe that considerable production can be developed in Colombia. However, exploration work has been so long delayed that it will be some time before intensive exploitation can be looked for, and no substantial increase in Colombian production would be looked for within two years, even though American companies interested were to resume immediately their field activities.

Acreage in Colombia is held in large blocks by American companies, prominent among which are Gulf Oil Corp., Sinclair Consolidated, Texas Corporation, Standard Oil Co. of New Jersey, and other major units, either directly or through subsidiaries. Practically all of the large holders of Colombian acreage are affiliated with the large units active in this country and under the circumstances, it may be expected that any general resumption of operations in Colombia will be along conservative lines, and that much the same policy will be followed in Colombia as is at present the case in Venezuela, where a sort of unofficial prorating agreement is holding down crude output.

At the present time, the majority of American oil companies with acreage holdings in Colombia have discontinued all operations. Field stations and supply depots are shut down, with a few scattered watchmen making up the entire "field force" of these companies. A general reopening of operations in Colombia, in the event that the desired modifications to Oil Law 37 are achieved, would take many American oil men back into Colombia, and would probably be reflected in quickened activity on the part of the field equipment trade in the United States. Virtually all of the field work done by most of the American companies in Colombia thus far has been exploratory in character, and while considerable of this work remains to be done, test drilling would be started very shortly after the resumption of operations.

Gulf Oil Corp., whose title to the much-disputed Barco Concession was confirmed by the Colombian courts some months ago, will benefit substantially by the proposed changes in Oil Law 37, and the modification of the law will greatly enhance that company's "picture" in Colombia.

PERUVIAN CRUDES VARY IN PROPERTIES

(Continued from Page 22)

eration showed the following characteristics:

	Topped crude	Reduced crude
A.P.I. gravity	27.3	22.7
Initial b.p., °F.	444	613
End b.p., °F.	722	727
Flashpoint (Cleveland open cup)	245	365
Firepoint (Cleveland open cup)	280	410
Flashpoint (Pensky-Martens)	235	362
Furol Vis. (sec.)	24@77° F.	34@122° F.
Cold test, °F.	41	75
B.S.&W. (Benzol centrifuge), per cent	trace	0.1
Per cent distilled over—	—Temp., °F.—	
5	496	636
10	512	649
20	537	674
30	582	689
40	620	700
50	658	703
60	694	709
70	716	709
80	720	711
90	722	708
95	698	727
Per cent over at 572° F.	28.0	...
Per cent coke by weight	2.9	5.0

Summary of Yields

These two oils were cracked by the nonresiduum process, under 150 pounds pressure, yielding the following products:

	Topped crude	Reduced crude
Charging stock:		
A.P.I. gravity	28.4	22.7
Gasoline (392° endpoint):		
Per cent of charge	47.9	53.7
A.P.I. gravity	57.9	57.3
Initial boiling point, °F.	104	105
Press. Dist. Bottoms:		
Per cent of charge	26.5	16.6
Gasoline (400° endpoint):		
Per cent of charge	50.5	55.5
A.P.I. gravity	56.3	56.7
Initial boiling point, °F.	108	109
Press. Dist. Bottoms:		
Per cent of charge	23.9	14.8
Gasoline (437° endpoint):		
Per cent of charge	62.1	60.5
A.P.I. gravity	52.0	54.2
Initial boiling point, °F.	112	120
Press. Dist. Bottoms:		
Per cent of charge	12.3	9.8
A.P.I. gravity	27.1	12.8
Coke (lbs. per barrel)	43	68
Gas (cubic feet per barrel)	625	809
Coke, gas and loss:		
Per cent of charge	25.6	29.7

Pressure Distillates

The pressure distillates produced by cracking Peruvian topped and reduced crude had the following distillation characteristics:

Charging stock—	Topped crude	Reduced crude
A.P.I. gravity	49.6	48.2
Initial boiling point, °F.	84	83
Sulphur, per cent	0.05	0.18
Per cent distilled over—	—Temp., °F.—	
5	124	124
10	152	150
20	214	209
30	250	245
40	294	274
50	324	305
60	369	340
66.5	395	...
70	...	380
75	...	396
81.8	445	...
85.3	...	455

Cracked Gasolines

Three grades of cracked gasolines were made from each of the pressure distillates. These analyzed as follows:

	From topped crude			From reduced crude		
End b.p., °F.	392	400	437	392	400	437
A.P.I. grav.	57.0	56.3	52.0	57.3	56.7	54.2
Init. b.p., °F.	104	108	112	105	109	120
Per cent distilled over	—Temperature, °F. (A.S.T.M. 100 cc. distillation)—					
5	142	146	162	143	144	158
10	164	168	186	163	164	180
20	194	198	220	198	199	212
30	222	228	252	225	226	236
40	244	252	280	248	246	258
50	264	272	302	265	266	282
60	284	292	330	285	288	304
70	304	322	354	305	306	334
80	326	346	380	330	331	363
90	354	370	402	358	361	398
95	380	384	422	386	388	424
% bottoms	1.0	1.0	1.0	1.5	1.5	1.5
% loss	2.0	1.0	0.5	1.5	1.5	1.5

Diesel or Tractor Fuel

The pressure distillate bottoms made when producing 437° endpoint gasolines are useful as Diesel or tractor fuels. Their distillation characteristics are tabulated below:

	From topped crude	From reduced crude
A.P.I. gravity	27.5	12.8
Initial boiling point, °F.	460	478
End boiling point, °F.	698	747
Per cent distilled over—	—Temp., °F.—	
5	476	493
10	478	501
20	483	510
30	490	523
40	498	534
50	506	550
60	515	572
70	526	604
80	550	640
90	606	689
95	678	725
Per cent bottoms	2.0	2.0

Chemical Treatment

The pressure distillates from topped and reduced crudes were each treated with acid and plumbite, as outlined:

1. Agitate with 2-4 pounds of 66° Be. sulphuric acid per barrel of distillate, settle and draw the sludge.
2. Wash well with water (preferably by showering).
3. Neutralize with 1 per cent by volume of 16° Be. sodium plumbite solution, settle and draw the sludge.
4. Distill with fire and steam at a maximum still temperature compatible with the capacity of the equipment and color stability of the finished gasoline.
5. Wash the freshly distilled gasoline with 1 per cent by volume of 1°-2° Be. caustic soda solution to improve the odor.
6. Water wash.

The refined cracked gasolines resulting from the above treatment and the straightrun naphtha refined with 3 per cent of 8° Be. caustic soda showed the following distillation characteristics:

	Straight-run naphtha	Cracked from topped crude	Cracked from reduced crude	Blend straight-run and cracked
A.P.I. gravity	55.4	59.0	58.0	57.1
Init. b.p., °F.	150	114	115	132
End. b.p., °F.	392	392	391	393
Color (before exposure)	30	30	27	30
Color (after exposure)	30	25	24	28
Doctor test	Neg.	Neg.	Neg.	Neg.
Corrosion	Neg.	Neg.	Neg.	Neg.
Sulphur, %	0.01	0.02	0.03	0.02
Per cent distilled over	—Temperature, °F.—			
5	192	150	161	176
10	208	170	177	192
20	226	194	203	215
30	240	218	222	231
40	256	238	243	250
50	268	258	261	265
60	281	276	275	277
70	297	290	292	294
80	318	314	317	318
90	343	344	343	343
95	368	372	365	367
% bottoms	1.5	1.0	1.0	1.2
% loss	1.0	2.0	1.0	1.3

The knock rating of these three gasolines was measured in the Ethyl Gasoline new "Series 30" motor. Results of these measurements are expressed as octane numbers, that is, per cent iso-octane in n-heptane. Standard Ethyl Gasoline has a knock rating of 74 octane number.

	Octane number
Straightrun naphtha	69
Cracked gasoline (from topped crude)	74
Cracked gasoline (from reduced crude)	74
Blend of naphtha and cracked gasoline	73

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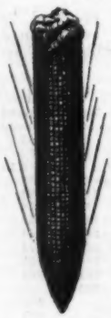

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GENERAL OFFICES: CINCINNATI

PRODUCERS OF LEAD, ZINC AND ALLIED PRODUCTS

Brief Items for Petroleum Refiners

Continental Oil Host to Oklahoma Oil Branch A.C.S.

The Continental Oil Co. was host to more than 100 plant chemists, superintendents and members of the research staffs of refineries in Oklahoma on Saturday, September 26, when the state petroleum branch of the American Chemical Society met in Ponca City for the first of the 1931-1932 series of meetings. In addition to papers read on technical subjects of immediate interest those attending were provided with guides and had an opportunity to visit all parts of the Continental plant. Interest was shown in the well equipped laboratories of the company for the testing of motor lubricants and fuels. Tests were in progress on the Mougey friction machine for the testing of heavy oils and greases. An exhibition of the use of the consistometer and the Hershel friction machine was also included.

The trip through the plant included an inspection of the new grease plant, bright stock plant, the converted Cross units, pressure distillate rerun unit and the new lub distillate unit.

The meeting was held in the Continental Oil Co.'s club buildings and lunch was also served there at noon. Those attending this lunch include the following: H. M. Smith, Prof. Fred W. Padgett, Claude G. Schmitt, Charles L. Nickolls, W. F. Huppke, J. A. Guyer, W. W. Keeler, H. M. Trimble, S. T. Eastman, K. Eilerts, G. S. Mitchell, Dr. P. Zurcher, H. H. Hopkins, J. K. V. Stewart, Charles N. Ott, C. Hassell Goodnight, P. H. Stark, J. R. Marshall, L. C. Burrough, R. A. Hochenson, Conrad P. Suman, R. E. Thurn, Peter Grandone, San S. Taylor, O. C. Blade, R. L. Ginter, R. J. Kaufmann, C. M. Loucks, F. V. Garner, F. R. Staley, H. T. Bennett, O. M. Smith, D. H. Foster, H. A. Dumont, Dr. C. K. Francis, L. L. Danis, L. S. Cannon, Bert H. Lincoln, O. H. Schoenwald, Philip Hayine, W. A. Jones, E. J. Smith, H. S. Armstrong, McDowell Gray, E. B. Gray, H. T. Rall, Frank B. Neptune, O. D. Horne, R. D. McCrum, B. H. Mylius, J. P. Wright, F. E. Frey, Walter A. Schulze, J. H. Olehy, D. R. Johnson, J. A. Jamison, M. Ettington, William T. Ziegenhain, H. N. Frost, William A. Simkins, R. W. Boyd, C. C. Chaffee, K. W. Shimeall and J. S. Hume.

SUIT INVOLVES CONTRACT DURING SHUTDOWN PERIOD

A suit involving the legality of crude oil contracts during the period that the East Texas Field was shut down by martial law has been filed in district court at Longview, Tex., by the Bell Oil & Gas Co. against the Blackwell Oil & Gas Co. The Bell company is seeking $57,029.29 plus costs in damage for alleged breach of contract on delivery of oil during the period from August 17 to September 1.

The petition cites that defendants agreed to deliver to plaintiffs 100,000 bbls. of oil for 12 cents per barrel at the rate of 7,500 bbls. daily; that 90,730.71 bbls. of the oil has never been delivered and that that quantity of oil at the market price was worth $57,029.39.

The petition further states that during the period when delivery was scheduled to take place, oil was selling at a price of 73½ cents, and that the plaintiff lost the difference between 12 and 73½ cents, or 61 cents per barrel, through default in delivery.

The Bell company is interested in the Petroleum Refractionating Corp. which is building a 10,000-bbl. refinery at Longview.

GULF INSTALLING NEW EQUIPMENT AT PLANTS

TOLEDO, Ohio, Sept. 28.—The Gulf Refining Co. is making improvements in three of its eastern oil refineries by installing equipment for what is termed a gasoline drying process. The process was developed by the Gulf company.

Installing the drying process at the Toledo, Cincinnati and Pittsburgh plants will represent an expenditure of $1,000,000. The Toledo refinery will supply northern Ohio, northern Indiana and Michigan.

The Cincinnati refinery will supply southern Ohio, southern Indiana and Kentucky, and the Pittsburgh refinery, located on Neville Island, will supply western Pennsylvania, Ohio River points and West Virginia.

It is estimated that Gulf already has expended about $6,000,000 in modernizing the old Paragon refinery in Toledo. The Cincinnati and Pittsburgh plants were built during the past year. A marine service station is also to be built at Toledo.

PAN AMERICAN COMPANY MAY BUILD GULF PLANT

HOUSTON, Tex., Sept. 28.—Pan American Petroleum & Transport Co., a subsidiary of the Standard Oil Co. of Indiana, has completed purchase of a tract of approximately 270 acres at Texas City on Galveston Bay. While no definite plans have been made known here by that company it is reported that the tract is to be the site of a tank farm and oil terminal and possibly a refinery. Included in the purchase is a right of way for a proposed line from the site to deep water on the bay. The site adjoins to the west that of Vacuum Oil Co.

If a terminal and tank farm is constructed, plans probably will call for an extension of Stanolind Pipe Line Co.'s line from Sinclair Refining Co.'s Houston plant and terminal to Texas City, a distance of 35 miles. The line formerly was owned by Sinclair supplying crude to the Houston refinery. Since purchase of the line by Standard Oil Co. of Indiana, the line has continued to serve the Sinclair refinery with approximately 20,000 bbls. daily under contract. Since the development of the East Texas Field, Sinclair has laid a new line from the refinery to a connection with the Prairie-Pure Pipe Line Co., which eventually may free the Stanolind Pipe Line Co. from supplying crude to the Sinclair refinery.

REDUCE PIPE LINE RATES

NEW YORK, Sept. 26.—Buckeye Pipe Line Co., Eureka Pipe Line Co. and the South West Pennsylvania Pipe Lines have filed notice with the Interstate Commerce Commission that, effective October 15, they will reduce rates from Ohio, West Virginia and Pennsylvania points to the Atlantic Seaboard. These lines serve a number of eastern refineries.

Buckeye will reduce rates from Ohio points from 39 to 33 cents per barrel to Bayway, N. J., and Marcus Hook, Pa. Southwest Pennsylvania will make a similar reduction from Ewings, Pa., to Bayway, and Eureka will make a corresponding cut in its rate from Morgantown, W. Va., to Bayway.

Eureka rates from other West Virginia points to Bayway and Marcus Hook will be reduced from 74 to 68 cents per barrel. These reductions, it is expected, will stimulate the movement of crude over eastern pipe lines to East Coast refining points.

First Shipment of Russian Gasolines Arrives at Detroit

NEW YORK, Sept. 29.—The arrival of 400,000 gallons of foreign gasoline into Detroit today, earlier reported as coming from Russia, in reality came from Constanza, Rumania, and was shipped by Steaua Romana, Rumanian subsidiary of Royal Dutch-Shell, it was learned here today.

This is the first large shipment of Rumanian gasoline ever to reach the United States and is reputedly the first delivery on a contract calling for delivery of 2,700,000 gallons of Rumanian motor fuel to an independent marketer in Detroit.

The contract when originally booked several months ago was believed to involve Russian gasoline, and came shortly after the actual shipment of a cargo of Soviet motor fuel into Baltimore.

The Detroit shipment reached Montreal a few days ago on the tanker Lincoln Ellsworth and was transshipped to Detroit via the St. Lawrence waterway. While it is not known whether the Detroit contract by Steaua Romana is an isolated transaction or represents the first of a number of such deals, the importation has aroused widespread interest among oil men, involving as it does the competition of a Rumanian Royal Dutch subsidiary with the American subsidiaries of that group. In some quarters it is expected that the Rumanian shipment will lead to renewed agitation for a tariff on petroleum and refined products.

STOCKHOLDERS APPROVE GALENA SIGNAL MERGER

OIL CITY, Pa., Sept. 26.—The merger of the Galena Signal Oil Corp., with the Valvoline Oil Co. was approved by the stockholders of the former company at a meeting held this week in Franklin, Pa. Under the terms of the merger plans, Galena stockholders will receive one share of Valvoline Oil Co. stock in exchange for 34.691125 shares of Galena stock.

Officials of the two companies will now proceed to arrange the details in connection with the merger.

The proposal approved by Galena Signal Oil Corp. stockholders yesterday was to "sell to E. W. Edwards the current assets and guaranty deposit of the Galena Signal Oil Corp. in exchange for 6,500 shares of the common stock $100 par value of the Valvoline Oil Co. and the assumption by Mr. Edwards of liabilities of the Galena Signal Oil Corp., except lines under leases and other continuing contracts." The proposal approved by the Galena stockholders also provides for the sale to the Valvoline Oil Co. of the fixed assets of the Galena corporation, plant, supplies, contracts, trade marks, patents issued and patent applications and other fixed assets in exchange for 1,500 shares of the common stock of the Valvoline Oil Co.

The Valvoline Oil Co. has headquarters in Cincinnati and refineries in Butler and Warren. A recent financial statement issued by the Valvoline Oil Co. shows it has current assets of $3,074,488.70 and total assets, including real estate, plants, equipment, amounting to $11,162,675.82.

The American Republics Corp. owns the controlling interest in the Galena corporation. The Galena company's main office and plant are located in Franklin. The Galena Oil Corp.'s authorized capital stock is 300,000 shares of no par value of which approximately 277,000 shares have been issued and are outstanding.

Members and visitors attending the first of the 1931-1932 series of meetings of the Oklahoma petroleum branch of the American Chemical Society at the Conoco Club in Ponca City.

Manufacture of Natural Gasoline

Per Cent Yield in Relation to Crudes Showing Decreases

After a steady climb for 10 years the percentage relationship between natural gasoline production and crude oil production will show a decrease this year according to data based on the production of the two products for the first seven months of this year. There has been a percentage gain in natural gasoline production per barrel of crude oil from year to year with rare exceptions, ever since natural gasoline became a commercial product. The government figures show that in 1918 when natural gasoline began to increase rapidly in production, the percentage relationship to crude oil was 1.89 per cent. That is, for every 42 gallons of crude oil production there were 1.89 per cent or .7938 gallon of natural gasoline.

The following table shows how the percentage relationship increased over the next 13 years (production goven in thousands of barrels):

Year—	Crude oil	Natural gasoline	Per cent
1918	355,928	6,727	1.89
1919	378,367	8,370	2.21
1920	442,929	9,161	2.07
1921	472,183	10,713	2.26
1922	557,531	12,044	2.16
1923	732,407	19,434	2.65
1924	713,940	22,235	3.11
1925	763,743	26,307	3.44
1926	770,874	32,305	4.19
1927	901,129	38,657	4.28
1928	901,474	42,326	4.69
1929	1,007,323	52,271	5.18
1930	896,265	51,736	5.77
1931 (7 mos.)	649,205	26,500	4.08

This table shows how natural gasoline production until this year had increased more rapidly than crude oil production. Whereas in 1918 there was .7938 gallon of natural gasoline for every barrel of crude oil, in 1930 this had increased 2.42 gallons. This increase was primarily due to the extension of natural gasoline manufacturing facilities to new fields where there was a large production of casinghead gas having a high gasoline content. Improvement in manufacturing methods also explains in part the increased recoveries.

Reasons for Decrease

For the first seven months of this year natural gasoline totaled 26,500,000 bbls., a decrease of almost 16 per cent when compared with the production of 30,683,000 bbls. for the first seven months of last year. This decrease is partially due to the reduction in crude oil production which decreased from 602,887,000 bbls. the first seven months of 1930 to 649,205,000 bbls. the first seven months of this year, a loss of 43,683,000 bbls. or slightly less than 7 per cent.

The remaining decrease in natural gasoline production is due to the fact that the production of natural gasoline per barrel of crude oil is less this year than last. The average percentage for the seven months was 4.08 per cent or 1.71 gallons per barrel of crude oil. This means that compared with last year there has been a decrease of .71 gallon of natural gasoline for every barrel of crude oil produced.

This development has been due mainly to two conditions. In the first place there have been no new fields opened with a large production of casinghead gas. The East Texas Field, which within a period of a few months has been developed so that it is now producing almost 20 per cent of the crude oil in United States does not have a natural gasoline plant although over 2,000 wells are producing. Two repressuring plants are being built and others are in prospect and when completed these plants will produce some natural gasoline. However, it is certain that the natural gasoline production will never be large in comparison to the crude oil output.

Another factor which has tended to decrease the percentage yields of natural gasoline in relation to crude oil this year has been the low market prices. Natural gasoline prices so far this year have been lower than any similar period since natural gasoline became an important product of the oil industry. This has caused some of the older plants with relatively high production costs to be shut down. Some of these plants will be reopened with a return to normal marketing conditions.

NATURAL GASOLINE OUTPUT UNDER MARTIAL LAW ONE-THIRD NORMAL

Were martial law lifted in the Seminole and Oklahoma City Fields and these allowed to produce under the same schedule of proration as was in effect prior to the shutting in of the fields, natural gasoline plant operations would be more than doubled and close to 500,000 gallons of natural gasoline would be made in addition to the 300,000 gallons now manufactured there daily.

The Oklahoma City area has been hardest hit by martial law, only six of the 13 plants operating. All of the Indian Territory Illuminating Oil Co.'s plants are down, including those jointly owned with the Cromwell and Franklin interests. There are seven of these plants, each with a capacity of 50,000,000 feet daily. The other plant having been shut down is that of the Phillips Petroleum Co. in SW Section 32-11-2w. The other plant of the Phillips company in the Oklahoma City Field is operating.

What is probably a conservative estimate of the volume of natural gasoline which would be made were martial law lifted in the Oklahoma City Field is still 11 times the present production there. The present output approximates 21,000 gallons daily. The estimates of the individual companies having plants there show that 223,000 gallons would be produced if martial law is lifted and probably three times this volume could be produced if the field was thrown open without restrictions.

In the following table are shown the data indicating the capacity of the respective plants, the present production of each and the probable output were martial law lifted but the field operated under the old schedule of proration.

The status of the plant operations in the Seminole area is comparable with those in the Oklahoma City area, but because of the fact a number of wells are making water and are allowed to produce, there is a much greater volume of gas available. This gas also, is much richer than that produced in the Oklahome City area and accounts for the present output of 285,500 gallons daily. This compares with the estimate of 565,000 gallons daily were martial law lifted.

Numerous plants have been shut down in this area also, but this has been the result of a natural decline in the gas supply as well as martial law. In the list of plants shut down the following appear: Amerada Petroleum Corp. in Seminole City, Barnsdall Oil Co. in Earlsboro, Empire Oil & Refining Co. in Little River, Forrest E. Gilmore in Maud, Shell Petroleum Corp. in Seminole City and in the St. Louis-Pearson area, and the Victor Gasoline Co. plant in the Bowlegs Pool.

The accompanying table shows the extent to which the production of the various companies would be increased were martial law lifted. In general it might be said that most plants would then produce double the present volume.

NATURAL GASOLINE PRODUCTION IN GREATER SEMINOLE

	Seminole City	Bowlegs	Earlsboro	Asher Little River	Konawa St. Louis Pearson	Mission Maud	Total now	Total if martial law lifted
Amerada Pet. Corp.	S. D.	.....	5,000	.....	.....	10,000	15,000	35,000
Barnsdall Oil Co.	.....	.....	S. D.	.....	.....	10,000	10,000	15,000
Carter Oil Co.	35,000	10,000	10,000	15,000	.....	.....	70,000	130,000
Crosbie & Moran	.....	.....	.....	.....	11,000	.....	11,000	22,000
Empire O. & R. Co.*	11,000	15,000	.....	S. D.	2,600	500	32,100	72,600
Forrest E. Gilmore Co.	.....	700	.....	1,300	.....	S. D.	2,000	4,000
Gypsy Oil Co.	.....	.....	.....	10,000	.....	3,500	13,500	21,000
Phillips Pet. Co.	.....	.....	.....	4,000	.....	.....	4,000	8,000
Magnolia Pet. Co.	.....	.....	3,000	.....	7,000	.....	10,000	20,000
Pure Oil Co.	5,000	1,300	.....	3,000	.....	.....	9,300	11,000
Powers, M. F.	.....	.....	.....	.....	300	.....	300	1,000
Shell Pet. Corp.	S. D.	.....	.....	.....	S. D.	7,000	7,000	12,000
Sinclair O. & G. Co.	36,000	15,000	5,000	9,500	20,000	.....	85,500	175,000
Skelly Oil Co.	.....	.....	7,000	.....	.....	.....	7,000	25,000
Victor Gasoline Co.	800	S. D.	.....	5,000	.....	.....	5,800	14,000
Total production	87,800	45,000	33,000	47,800	41,900	31,000	285,500	565,000

*Includes production of Indian Territory Illuminating Oil Co.

NATURAL GASOLINE PLANT OPERATIONS IN THE OKLAHOMA CITY FIELD

Company, location—	Maximum gas capacity daily, cu.ft.	Present daily gasoline production	Product'n if martial law lifted
I.T.I.O., Bodine	50,000,000	S. D.	12,000
I.T.I.O., Button	50,000,000	S. D.	12,000
I.T.I.O., Verne	50,000,000	S. D.	12,000
I.T.I.O., Jones	50,000,000	S. D.	12,000
I.T.I.O. and Cromwell-Franklin interests, Farley	50,000,000	S. D.	12,000
I.T.I.O. and Cromwell-Franklin interests, Trosper	50,000,000	S. D.	12,000
Phillips, SW Section 32-11-2w	50,000,000	S. D.	40,000
Phillips, SW Section 1-11-3w	50,000,000	10,000	40,000
Shell, Petty	50,000,000	3,500	12,000
Wirt Franklin, Lowry	40,000,000	1,300	4,000
Sinclair, NW Section 30-11-2	100,000,000	1,200	40,000
Amerada, SE Section 30-11-2w	40,000,000	3,000	10,000
Coline, Olds	7,500,000	2,000	5,000
Total	637,500,000	26,900	223,000

EAST TEXAS PLANTS

Although no announcement of the building of new plants in the East Texas area was made during the past week the Barnsdall Oil Co., Sinclair Oil & Gas Co., Arkansas Natural Gas Co., Phillips Petroleum Co. and Gulf Oil Corp. continue to consider the problem.

These companies and others have hesitated building plants there because of the weak market for the products and the uncertainty of the gas production over a period in the future.

To Suspend Further Building of Butane Plants West Coast

SAN FRANCISCO, Calif., Sept. 28.—The Pacific Public Service Co. has decided to suspend the building of additional butane plants along the Pacific Coast. This move is attributed to the disappointing earnings progress of Natural Gas Properties, Inc., Pacific Public Service subsidiary, operating the 19 plants which have been completed to date in California, Oregon and Washington.

The poor showing made thus far probably is entirely the result of slackened business activity, and consequent reduction in purchasing power in the communities concerned. It is generally conceded by utility experts that had business continued at pre-depression levels actual results would now be running close to estimates made at the time the expansion program was promulgated.

At that time, plans called for construction of more than 100 butane plants on the Pacific Coast in towns scattered from the Mexican to the Canadian border. About 35 of these units were to have been built in California, and the rest in Oregon, Washington and Arizona.

To date, 19 plants have been placed in operation in Oregon, Washington and California, at a cost of more than $3,000,000, the greater part of which was expended during 1930. Of these, 11 are in this State.

That further exploitation of this type of service is unlikely at present is indicated by negotiations now under way between the California Railroad Commission and Natural Gas Corp. of California. Pacific Public Service subsidiary, whereby the company may be permitted to postpone construction and service in 24 communities for which certificates of public convenience and necessity already have been granted by the commission.

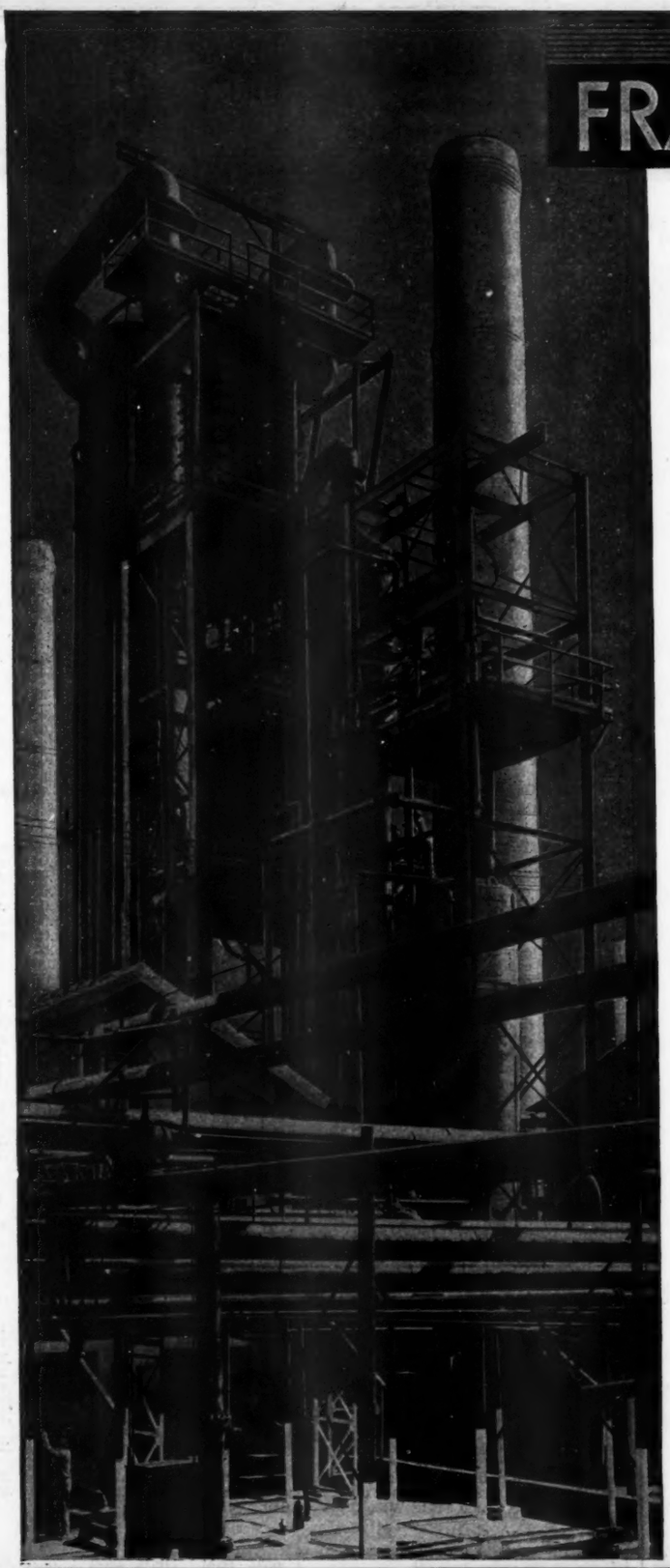
As to the possibility of Pacific Gas & Electric Co. purchasing any of Pacific Public Service butane plants, some option arrangement undoubtedly has been made whereby the former will take over such units as may be located close to present and future natural gas pipe lines, where gas service may economically be extended. However, that Pacific Gas would be interested in taking over the operations of butane plants in isolated communities with little possibility of future growth, is doubtful.

While Pacific Lighting subsidiaries now are operating butane plants in a few small communities, the company has located these plants in towns which it feels will eventually be linked to its natural gas pipe line network.

SIGNAL ADDS TO TREATING PLANT IN BIG LAKE FIELD

The Signal Gasoline Co. of Texas, which operates a topping plant and casinghead gasoline plant in the Big Lake Field, Reagan County, in West Texas, will install equipment for the application of a new gas treatment method which L. A. Boyd, district superintendent, and Dr. K. S. Ritchie, research engineer of the company, have developed. The treating costs will be lowered materially in the reduction of the consumption of sodium hypochlorite by this new system.

The casinghead gasoline plant produces about 330 bbls. of gasoline daily. The topping plant makes approximately 180 bbls. of distillate and 90 bbls. of residuum.



FRACTIONATION

The quality and yield of products obtained by the refiner depends essentially upon the capacity of the distilling towers to fractionate with precision. This fractionating capacity is a function of the design and construction of the tower and reflects the degree of understanding, skill and experience of the builder.

The Lummus Co. has had 30 years experience in the design and construction of fractionating equipment for a wide variety of exacting requirements such as the separation of acetone-methanol mixtures, oxygen and nitrogen from liquid air, the fractionation under vacuum of essential oils, the continuous separation of complex mixtures of acetic acid, aldehydes and tars, etc.

This understanding, skill and experience contribute to the outstanding performance of Lummus Petroleum plant.

THE LUMMUS CO.

Builders of Petroleum Plants

• • •

148 STATE STREET, BOSTON
30 CHURCH STREET, N. Y.

LUMMUS PETROLEUM REFINING PLANTS

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Sept. 29		Sept. 22		Sept. 15	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.02¾	.03	.03		.03½	.04
56-58 450 endpoint	.02¾		.02⅞	.03	.03½	
58-60 437 endpoint (U. S. Motor)	.02⅞	.03	.03	.03½	.03½	.04½
60-62 437 endpoint	.02⅞	.03	.03	.03½	.03½	.04½
60-62 400 endpoint	.03	.03½	.03⅛	.03½	.03¾	.04½
64-66 375 endpoint	.03¼	.03¾	.03½	.04	.04	.05
68-70 360 endpoint	.03½	.04	.03¾	.04½	.04¼	.05
64-66 437 endpoint (blend)	.02¾		.03	.03¼	.03½	.03¾
NORTH TEXAS—						
50-52 450 endpoint	.02¾		.02¾	.03	.03¼	.03½
58-60 450 endpoint	.02⅝	.02¾	.02¾		.03¼	
58-60 437 endpoint (U. S. Motor)	.02⅞	.03	.02¾	.03	.03¼	.03½
60-62 400 endpoint	.02⅞	.03	.02⅞	.03	.03½	.03⅝
64-66 390 endpoint	.03⅛	.03½	.03⅛	.03½	.03⅝	.03¾
64-66 375 endpoint	.03¼	.03¾	.03¼	.03¾	.03⅞	.04¼
68-70 360 endpoint	.03½	.04	.03⅝	.03¾	.04	.04½
64-66 437 endpoint (blend)	.02¾		.02¾	.03	.03¼	.03½
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.03½		.03¾	.04	.04½	
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.03½		.03¾	.04	.04½	.04¾
PENNSYLVANIA—						
52-54 Naphtha	.05		.05		.05	
54-56 Naphtha	.05		.05		.05	
58-60 Gasoline	.05¼	.05⅜	.05¼	.05⅜	.05⅜	
60 Gasoline	.05⅜		.05⅜		.05⅜	
62 Gasoline	.05⅜	.05½	.05⅜	.05½	.05⅜	
64 Gasoline	.06		.06		.05⅞	.06
68-70 350 endpoint gasoline	.06½		.06½		.06¼	.06½
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.05½	.06½	.05	.06	.04½	.05½
58-60 400 endpoint domestic gasoline	.05¾	.06¾	.05¼	.06¼	.05	.06
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.02½	.02¾	.03	.03¼	.03	.03½
58-60 437 endpoint (U. S. Motor)	.02½	.03	.03	.03½	.03⅛	.04
60-62 400 endpoint	.02⅝	.03¼	.03⅛	.03½	.03¼	.04
64-66 375 endpoint	.03⅛	.03½	.03⅜	.03⅝	.03½	.04
68-70 360 endpoint	.03⅝	.04	.03⅞	.04¼	.04	.04½
64-66 437 endpoint (blend)	.02½	.03	.02⅞	.03⅛	.03	.03¼
GULF COAST (Export)—						
58-60 U. S. Motor	.04	.04½	.05		.05	
60-62 400 endpoint	.04¼	.04½	.05⅛		.05¼	
61-63 390 endpoint	.04½	.04¾	.05¼		.05¼	
64-66 375 endpoint	.04½	.04¾	.05½		.05½	

*Louisiana, Arkansas and Mississippi delivery. †For Pacific Coast consumption.

NATURAL GASOLINE

	Sept. 29		Sept. 22		Sept. 15	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04		.04		.03⅞	.04
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04		.03⅞	.04	.03⅞	.04
Grade B, 76-83.9, 375 e.p., rec. 85%	.04		.03⅞	.04	.03⅞	
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.03⅞		.03⅞	
Grade C, 80-92, 375 e.p., rec. 78%	.04		.03⅞		.03⅞	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.03⅝	.03¾	.03⅝	.03¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¾		.03⅝		.03⅝	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03¾		.03⅝		.03⅝	
Grade BB, 84-92, 375 e.p., rec. 85%	.03¾		.03⅝		.03⅝	
Grade C, 80-92, 375 e.p., rec. 78%	.03¾		.03⅝		.03⅝	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.04		.04		.04	
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.04		.04	
Grade C, 80-92, 375 e.p., rec. 78%	.04		.04		.04	
CALIFORNIA—						
75-78 375-390 endpoint	.04½	.05½	.04½	.05¼	.04½	.05
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04		.03¾		.03¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04		.03¾		.03¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.03¾		.03¾	

BURNING OIL

	Sept. 29		Sept. 22		Sept. 15	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.01⅞	.02	.01⅞	.02	.02	.02½
42-44 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—						
41-43 water white kerosene	.01⅞	.02	.01⅞	.02	.01⅞	.02
40-41 water white kerosene	.01¾	.01⅞	.01¾	.01⅞	.01¾	.01⅞
***NORTH LOUISIANA—**						
41-43 water white kerosene	.02¼		.02¼	.02⅜	.02¼	.02⅜
***ARKANSAS—**						
41-43 water white kerosene	.02¼		.02¼	.02⅜	.02¼	.02⅜
PENNSYLVANIA—						
43 Kerosene prime white	.03⅝		.03⅝		.03⅝	
45 Kerosene water white	.03½		.03½		.03½	
46 Kerosene water white	.03⅜		.03⅜		.03⅜	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.05	.04	.05	.04	.05
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.01¾	.01⅞	.01⅞	.02	.01⅞	.02
42-44 water white kerosene	.01⅞	.02	.02	.02⅛	.02	.02⅛
GULF COAST (Export)—						
41-43 prime white	.03½		.03½		.03½	
44 prime white	.03½	.03¾	.03½	.03¾	.03½	.03¾

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Sept. 29		Sept. 22		Sept. 15	
OKLAHOMA (Group 3)—						
Below 18 gravity Fuel Oil, per bbl.	.22½	.27½	.22½	.27½	.22½	.27½
18-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
20-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.27½	.32½
24-26 Fuel Oil, per bbl.	.32½	.37½	.32½	.37½	.32½	.37½
26-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
28-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
32-36 Gas Oil (industrial)	.01⅛	.01¼	.01⅛	.01¼	.01⅛	.01¼
32-36 Gas Oil (straw color, high cold test)	.01⅛	.01¼	.01⅛	.01¼	.01⅛	.01¼
32-36 Gas Oil (straw color, low cold test)	.01⅛	.01¼	.01¼	.01⅜	.01¼	.01⅜
36-38 Distillate	.01⅜	.01½	.01⅜	.01½	.01⅜	.01½
38-40 Straw Distillate	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝

Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.20	.25	.20	.25	.20	.25
24-26 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
32-36 Gas Oil (industrial)	.00⅞	.01	.00⅞	.01	.00⅞	.01
38-40 Straw Distillate	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.45	.55	.45	.55	.45	.55
30-32 Gas Oil (low cold test)	.01½	.01¾	.01½	.01¾	.01½	.01¾
***ARKANSAS—**						
33-36 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
30-32 Gas Oil	.01½	.01¾	.01½	.01¾	.01½	.01¾
16-22 Refinery Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
GULF COAST (South Texas)—						
Gas Oil	.02¼	.02½	.02¼	.02½	.02½	.02¾
Bunker C Fuel (cargo lots), per bbl.	.43	.48	.43	.48	.45	.50
Bunker C Fuel (small lots)	.55		.55		.55	
PENNSYLVANIA—						
30-34 Fuel Oil	.02¾	.03	.02¾	.03	.02¾	.03
36-40 Gas Oil	.03		.03		.03	
CALIFORNIA—						
42-45 480 endpoint engine distillate	.05½	.07	.05	.06	.05	.06
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil (f.o.b. tank cars), bbl.	.45	.75	.45	.75	.45	.75
27 plus Diesel, per bbl.	.75	.95	.75	.95	.75	.95
30-34 Gas Oil	.75	.95	.75	.95	.75	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.27¼	.30	.25	.27½	.25	.27½
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.27½	.32½
28-30 Fuel Oil, per bbl. (zero)	.45	.47½	.45	.47½	.42½	.47½
32-36 Gas Oil (industrial)	.01⅛	.01¼	.01	.01¼	.01	.01¼
32-36 Gas Oil (zero)	.01¼	.01½	.01⅜	.01½	.01¼	.01⅜
38-40 Straw Distillate	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01½

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

	Sept. 29		Sept. 22		Sept. 15	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.04½	.04¾	.04½	.04¾	.04	.04½
100 vis., 3 color, 20-25 cold test	.04	.04½	.04	.04½	.03¾	.04
150 vis., 3 color, 20-25 cold test	.06¾	.07¼	.06¾	.07¼	.06¼	.06¾
150 vis., 4 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.05¾	.06
180 vis., 3 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.07¾	.08¼
180 vis., 4 color, 23-28 cold test	.07¾	.08¼	.07¾	.08¼	.07¼	.07¾
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.07	.07¼
200 vis., 3 color, 23-28 cold test	.09½	.10	.09½	.10	.08½	.09
200 vis., 4 color, 23-28 cold test	.09	.09½	.09	.09½	.08¼	.08¾
200 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.07¾	.08
240 vis., 3 color, 25-30 cold test	.11	.11¼	.11	.11¼	.10¼	.10¾
240 vis., 4 color, 25-30 cold test	.10¼	.10¾	.10¼	.10¾	.09½	.10
240 vis., 5 color, 25-30 cold test	.09¾	.10	.09¾	.10	.09	.09½
280 vis., 3 color, 25-30 cold test	.12½	.13	.12½	.13	.11¾	.12¼
280 vis., 4 color, 25-30 cold test	.11½	.12	.11½	.12	.10¾	.11¼
280 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¼	.10½
Cylinder Stocks:						
600, steam refined, light green	.04½	.06	.04½	.06	.04½	.06
600, steam refined, dark green	.04	.05	.04	.05	.04	.05
190-200 vis., D color, Bright Stocks	.21	.22	.21	.22	.21	.22
150-160 vis., D color, Bright Stocks 0-10 c.t.	.19½	.20	.19½	.20	.19½	.20
150-160 vis., D color, Bright Stocks 10-25 c.t.	.19½		.19½		.19½	
150-160 vis., D color, Bright Stocks 25-40 c.t.	.19		.19		.19	
150-160 vis., E color, Bright Stocks	.18½	.19	.18½	.19	.18½	.19
Waxes:						
124-126 White Crude Scale Wax	.01⅝	.01⅞	.01⅝	.01⅞	.01⅝	.01⅞

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½		.05½		.05½	
34 Sundebloom	.05	.05½	.05	.05½	.05	.05½
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.17	.17½	.17	.17½	.17	.17½
180, 3 color	.18½	.19	.18½	.19	.18½	.19
200, 3 color	.21	.21½	.21	.21½	.21	.21½
220, 3 color	.22	.26½	.22	.26½	.22	.26½
600, steam refined	.14	.14½	.14	.14½	.14	.14½
650, steam refined	.17½	.18	.17½	.18	.17½	.18
600, Pennsylvania Flash	.18½	.19	.18½	.19	.18½	.19
600, E filtered	.18		.18		.18	
600, D filtered, Oil City	.22½	.23½	.22½	.23½	.22½	.23½
Pennsylvania Bright Stocks below 35 c.t.	.29		.29		.29	
Pennsylvania Bright Stocks above 35 c.t.	.28½	.29	.28½	.29	.28½	.29
*122-124 White Crude Scale Wax	.019	.02	.019	.02	.019	.02
*124-126 White Crude Scale Wax	.019		.019		.019	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
200 vis., 3 color, pale oil	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
300 vis., 3 color, pale oil	.08¾	.08⅞	.08¾	.08⅞	.08¾	.08⅞
500 vis., 3½ color, pale oil	.09⅞	.10⅛	.09⅞	.10⅛	.09⅞	.10⅛
750 vis., 3½ color, pale oil	.11⅜	.11⅞	.11⅜	.11⅞	.11⅜	.11⅞
1,200 vis., 3½ color, pale oil	.13⅞	.14⅜	.13⅞	.14⅜	.13⅞	.14⅜
2 000 vis., 4 color, pale oil	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
200 vis., 5-6 color, red oil	.06¾	.06⅞	.06¾	.06⅞	.06¾	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅜	.07⅞	.08⅜	.07⅞	.08⅜
500 vis., 5-6 color, red oil	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝
1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
CALIFORNIA—						
130 vis., 2½-3 color	.08	.08½	.08	.08½	.08	.08½
200 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
300 vis., 3-3½ color	.10	.11	.10	.11	.10	.11

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
450 vis., 3½-4 color	.12	.12½	.12	.12½	.12	.12½
550 vis., 3½-4 color	.12½	.13¼	.12½	.13¼	.12½	.13¼
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
600 vis., 6½ plus color	.13	.13½	.13	.13½	.13	.13½
700 vis., 6½ plus color	.14	.15	.14	.15	.14	.15

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) EXPORT PRICES

	Sept. 29		Sept. 22		Sept. 15	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.06	.06¼	.06	.06¼	.06	.06¼
Kerosene, water white, 41-43	.05		.05		.05	
*Fuel Oil, Bunker "C," 41-43	.70		.70		.70	
†Fuel Oil, Diesel, 28-30, per bbl.	1.40		1.40		1.40	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10½	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.03½		.03½		.03½	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.02⅞		.03	
125-127 a.m.p., per lb.	.03		.03		.03⅛	
130-132 a.m.p., per lb.	.03½		.03½		.03⅝	
133-135 a.m.p., per lb.	.04		.04		.04⅛	
135-137 a.m.p., per lb.	.04½		.04½		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.02¾		.02¾		.02¾	
Extra Amber	.03		.03		.03	
Cream	.05¾		.05¾		.05¾	
Lily White	.06½		.06½		.06½	
Snow White	.07¼		.07¼		.07¼	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) REFINERY PRICES

	Sept. 29		Sept. 22		Sept. 15	
600, steam refined cylinder stocks, in bbl.	.20	.20½	.20	.20½	.18½	.19
635, steam refined	.22	.23	.22	.23	.20½	.21
650, steam refined	.23	.24	.23	.24	.21	.22
600, Pennsylvania Flash	.25	.26	.25	.26	.23	.24
630, Pennsylvania Flash	.29½	.30	.29½	.30	.28½	.29
600, Warren E	.24½	.25	.24½	.25	.23	.24
600, Oil City E	.23½	.24	.23½	.24	.22	.23
Light 140-150 Bright Stocks	.33	.34	.33	.34	.31	.32
Dark 140-150 Bright Stocks	.32	.33	.32	.33	.30	.31

LOS ANGELES EXPORT PRICES

	Sept. 29		Sept. 22		Sept. 15	
Kerosene, water white	.04	.04¾	.04	.04¾	.04	.04¾
U. S. Motor gasoline, 53-55, 437 e.p.	.04¼	.05	.04	.04½	.04	.04½
58-60, 400 endpoint gasoline	.04¾	.05½	.04½	.05	.04½	.05

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas† ..... $ .68
Corsicana heavy (Aug. 22, 1931)† ..... .34
Other fields ..... See gravity table

†Posted by Panola Pipe Line Co. Aug. 17, 1931; by Magnolia Petroleum Co., Aug. 22, 1931; Tidal Refining Co., Sept. 2; Gulf Pipe Line Co., Sept. 3; Sinclair Refining Co., Sept. 3.

Note—Humble Oil & Refining Co. and Stanolind Crude Oil Purchasing Co. also pay 68 cents for East Texas oil, but do not post a price.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties. See gravity table

WEST TEXAS

Iatan and Westbrook. . Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .35
Lea County, N. Mex.* ..... .35
Toborg, Pecos County, Aug. 25, 1931†.. .25

*The Texas Company, August 22, 1931. All other companies, August 22. †Shell Petroleum Corp.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective September 12, 1931)

Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.80
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) 1.70
Penna Grade Oil in Buckeye Pipe Line Lines (Sept. 4, 1931) 1.60
Corning Grade Oil in Buckeye Pipe Line Co.'s Line (Sept. 16, 1931) ..... .80
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

Note—Joseph Seep Purchasing Agency discontinued posting a price for oil in National Transit lines on October 1, 1931.

Tide Water Pipe Co.
(Effective September 12, 1931)

Bradford, Pa., crude $2.25
Allegany, N. Y., crude 2.25

Pure Oil Co.
(Effective September 12, 1931)

Cabin Creek, W. Va. $1.70
Bradford Hollow, W. Va. 1.70

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers ..... See gravity table
Jennings, La. (Aug. 22, 1931)* ..... $ .50
Lockport, La. (Aug. 27, 1931)† ..... See Gulf Coast gravity table
Refugio light ..... See gravity table
Refugio heavy (Aug. 22, 1931)‡ ..... .60
Markham (Aug. 22, 1931)§ ..... .52
..... See Gulf Coast gravity table
High Island (Aug. 22, 1931)¶ ..... .50

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. §The Texas Company. Other companies July 24. ¶Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) See note below
Urbana, Ark. ..... See note below
Bellevue, La. (June 3, 1931) ..... $ .25
Urania, La. (Aug. 24, 1931) ..... .40
Calion, Ark. (Aug. 22, 1931) ..... .52
East El Dorado, Ark. (Aug. 22, 1931).. .45
Stephens, Ark., below 29° (August 24, 1931) ..... .41
Stephens, Ark., 29° and above (August 24, 1931) ..... .44
Other fields ..... (See gravity table)

Note—Smackover, all grades, The Texas Company, August 22, 1931, 52 cents; Gulf Refining Co., August 22, 45 cents; Magnolia Petroleum Co. and Standard Oil of Louisiana, August 24, 45 cents. Urbana posting discontinued by Standard Oil Co. of Louisiana on August 24, 1931. Bellevue posted by Magnolia Petroleum Co.; Urania by Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.; Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Aug. 22, 1931)* ..... $ .52
Luling (Aug. 22, 1931)† ..... .34

(Continued on Page 94)

CRUDE OIL GRAVITY TABLE

	Okla., Kans., East Central and North Central Texas (1)	North Louisiana and Arkansas (2)	Gray County, Texas (3)	Carson and Hutchinson Counties, Tex. (4)	Salt Creek, Wyo. (5)	Gulf Coast (6)
Below 25 degrees	...	...	...	...	...	.55
25-25.9 degrees	...	...	...	...	...	.56
26-26.9 degrees	...	...	...	...	...	.57
27-27.9 degrees	...	...	...	...	...	.58
28-28.9 degrees	...	...	...	...	...	.59
Below 29 degrees	.46	.46	...	...	.46	...
29-29.9 degrees	.48	.48	...	...	.48	.60
30-30.9 degrees	.50	.50	...	...	.50	.61
31-31.9 degrees	.52	.52	...	...	.52	.62
32-32.9 degrees	.54	.54	...	...	.54	.63
33-33.9 degrees	.56	.56	...	...	.56	.64
34-34.9 degrees	.58	.58	.46	.41	.58	.65
35-35.9 degrees	.60	.60	.48	.43	.60	.66
36-36.9 degrees	.62	.62	.50	.45	.62	.67
37-37.9 degrees	.64	.64	.52	.47	.64	.68
38-38.9 degrees	.66	.66	.54	.49	.64	.69
39-3.99 degrees	.68	.68	.56	.51	.64	.70
40 degrees and above	.70	.70	.58	.53	.64	.71

Note—Magnolia Petroleum Co. does not pay on a gravity basis. The Magnolia company posted the following notices on August 22 and August 24 as indicated:

"Effective August 22, 1931, and until further notice our prices on crude oil will be as follows per barrel at the wells: Central Texas, which includes only Mexia, Wortham, Corsicana light, Panola County, and Lytton Springs, 64 cents; Panhandle district of Texas, Gray County, 58 cents; Carson and Hutchinson Counties, 51 cents; West Texas, being Crane, Upton, Howard, Glasscock and Mitchell Counties, 35 cents; Mirando, 60 cents; Darst Creek, 52 cents; Luling, 34 cents; Corsicana heavy, 34 cents. Oklahoma, including Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole, 68 cents; Cement, Duncan, and Walters, 60 cents; Healdton, 37 cents; Hewitt and Graham, 52 cents. North and Central Texas, including only Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 68 cents; East Texas, 68 cents. The White Eagle Oil Corp., effective September 28, posted the following prices in Kansas: Group 1—East Borough, Wright, Robbins, Greenwich, Lorena and North Greenwood Pools, 70 cents; Group 2—Eastman, Fox-Bush and Keighly, 68 cents; Group 3—Smock, Sluss, Leon, Weaver, Peabody and Rock, 66 cents; Group 3A—Ritz-Canton, 64 cents; Group 4—Urschell, Florence, Elbing, Nuttle-Koogler, Augusta, 62 cents; Group 5—Gelwick, 46 cents.

"Effective August 24, 1931, and until further notice our prices on crude oil in the states of Louisiana and Arkansas will be as follows per barrel at the wells: Louisiana, Bull Bayou, 68 cents; Haynesville, 50 cents; Pine Island, 58 cents; Cotton Valley, 46 cents. Arkansas, El Dorado and Rainbow, 48 cents; El Dorado East Field and Smackover district, 45 cents."

Column 1—The Texas Company (excepting Kansas), August 22; Gypsy Oil Co., Gulf Pipe Line, Carter Oil Co., Humble Oil & Refining Co., Stanolind Crude Oil Purchasing Co., Sinclair Refining Co., Continental Oil Co., Skelly Oil Co. (Kansas), Empire Pipe Line Co., Wilcox Oil & Gas Co., Tidal Refining Co., Pure Oil Co., Vickers Petroleum Co., Derby Oil Co., all on August 22. Stanolind Oil Co., September 17, 1931.

Column 2—The Texas Company, August 22; Gulf Refining Co., August 22; Standard Oil Co. of Louisiana, August 24; Louisiana Oil Refining Co., August 24.

Column 3—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22; Wilcox Oil & Gas Co., September 17, 1931; Philtex Oil Co., September 17, 1931.

Column 4—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22; Philtex Oil Co., September 17, 1931.

Column 5—The Mid West Refining Co., August 22.

Column 6—The Texas Company, August 22; Humble Oil & Refining Co. and Gulf Pipe Line Co. on August 22 but their price schedule stops at 35 and above at 66 cents. Sun Oil Co. and Sinclair Refining Co. met Humble-Gulf prices effective August 22, but Sun posted a price of 55 cents for Grade A oil, it being the only company that maintains A and B grade classifications. The Vacuum Oil Co. applied the schedule to Lockport on August 27.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.66	$.65	...	$.55	$.56
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.56
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.56
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.56
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.56
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.56
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.56
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.73
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—65 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—65 cents for all grades (14° to 19.9°).

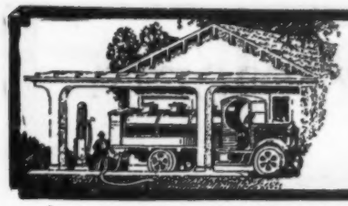
Montebello—65 cents for all grades (14° to 25.9°).

Whittier and Lahabra—65 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—32° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

(Continued on Page 103)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Sept. 29

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Chicago	14 0	14.0	3.0	9.0
Decatur, Ill.	14.4	14 4	3.0	9.0
E. St. Louis	13 7	13.7	3.0	8 2
Joliet	14 4	14.4	3.0	9 0
Peoria	14 4	14 4	3.0	9.0
Quincy	14.2	14.2	3 0	8.8
Davenport, Ia.	14.5	12.5	3 0	9 3
Des Moines	14.5	13 4	3 0	8 0
Keokuk	14.5	14 5	3 0	8 3
Sioux City	14 1	14 1	3.0	8.9
Duluth, Minn.	15 5	15.5	3.0	9 9
Mankato	15.1	15.1	3.0	8 0
Minneapolis	15 2	13 4	3.0	9 9
La Crosse, Wis.	16 2	16.2	4.0	10 0
Milwaukee	15 1	15 1	4.0	8.9
Madison	15 3	15 3	4 0	9 1
Detroit, Mich.	14 8	14.5	3.0	10.7
Grand Rapids	14.7	14 7	3 0	10 6
Saginaw	14.9	14.9	3 0	10.5
Evansville, Ind.	15.1	15 1	4 0	9.9
Indianapolis	15.3	15 3	4 0	9 0
South Bend	15 4	15 4	4.0	10.2
Fargo, N. D.	16 9	16.9	5.0	11.9
Huron, S. D.	16 3	16 3	4.0	10.7
Sioux Falls	15 8	15 8	4.0	10.4
K. C., Mo.	13 9	13 9	3 0	7.6
Springfield*	13.9	13 9	3.0	8.5
St. Louis*	12.9	12.4	2.5	8.3
St. Joseph	13 5	13 5	3 0	7 5
Wichita, Kans.	12 8	12.8	3 0	7 8
Bartlesville, Ok.	13.0	16.0	5.0	7.0

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 2 cents or more below the price on the regular grade.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	13.0	14.0	4.0	8 0
Fort Worth	12 0	14 0	4 0	8 0
Houston	12 0	14.0	4.0	11 0
San Antonio	12 0	14.0	4.0	10 0
El Paso	14 0	16.0	4.0	12.0
Texarkana	12 0	14 0	4 0	11 0
Muskogee, Ok.	12 0	14.0	5.0	8 0
Okla. City	12.0	16 0	5 0	7 0
Tulsa	13.0	15.0	5.0	8 0
Ft. Smith, Ark.	16 5	17 5	5 0	11 0
Little Rock	17.5	18.5	6.0	11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Omaha	15 25	16.25	4 0	9.25
McCook	16 00	17 75	4.0	10.75
Norfolk	16.75	16 75	4 0	9 75
N. Platte	16 75	17 75	4.0	10.50
Scottsbluff	16.00	16.00	4.0	10.25

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade) 1 cent off normal service station price.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Denver, Colo.	14.0	17 0	4.0	12.5
Pueblo	15.0	18.0	4.0	12.0
Grand Jctn.	12.0	20.0	4.0	14.5
Casper, Wyo.	14.0	17.0	4.0	10.0
Cheyenne	15.0	18.0	4.0	11 5
Butte, Mont.	17.0	20.0	5 0	16 0
Billings	20 0	23.0	5 0	14.5
Great Falls	20.0	23.0	5.0	16.0
Helena	20.0	23.0	5.0	16.0
Salt Lake, Utah	17.5	20.5	4.0	16.0
Albu'que, N.M.*	18.0	21.0	6.0	14 0
Boise, Idaho	20.5	23 5	5.0	18.0
Twin Falls†	20.0	20.0	5.0	18.0

*One-cent excise city tax. †Three-cent discount off tank wagon to dealers.

PACIFIC COAST TERRITORY

	Gasoline Wh'ls'e price	Gasoline Retail* price	Gasoline Incl'ds tax of	Kero. tank wagon
Fresno	19 5	16 5	3.0	17 0
San Francisco	19 5	16 5	3.0	15 5
Los Angeles	19.0	16.0	3.0	15.5
Reno, Nev.	23 5	20 5	4.0	19 0
Portland, Ore.	21 0	18 0	4 0	16 5
Seattle, Wash.	22.0	19.0	5.0	16 5
Tacoma	22 0	19.0	5 0	16 5
Spokane	25.5	22.5	5.0	20.5
Phoenix, Ariz.	15.5	17.5	5 0	20 0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	*10.0	*11.0	...	11 0
Philadelphia	*10 0	*11.0	...	11 0
Scranton	*10 0	*11.0	...	11 0
Allentown	*10 0	*11 0	...	11.0
Altoona	*10 0	*11 0	...	11.0
Erie	*10 0	*11 0	...	11.0
Dover, Del.	13 0	14.0	3 0	11 0
Wilmington	13.0	14.0	3.0	11 0
Springf'd, Mass.	14 5	15.5	3.0	10 0
Worcester	14.3	15 3	3 0	10 0
Boston	12.5	14 5	3 0	10.0
Providence, R.I.	12 1	13 1	3 0	10 0
Hartford, Conn.	14.5	15.5	3 0	10 0
New Haven	14 6	15 6	3.0	10.0

*Does not include tax of 3 cents in Pennsylvania. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The above prices are subject to discounts to the dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	14 5	14 5	6.0	12 0
Baton Rouge	15 0	16.0	5 0	12 0
Alexandria†	16.0	17.0	6.0	12.0
Lafayette*	16.0	17.0	6.0	12.0
Lake Charles*	15.5	15.5	6.0	12.0
Shreveport	15 5	16.5	5.0	12.0
Knoxville, Tenn.	18.5	19.5	6.0	13.5
Memphis	16.5	17.5	6.0	10.0
Chattanooga	18.0	19.0	6.0	12.0
Nashville	17.5	18.5	6.0	12 5
Bristol	18.0	19.0	6 0	14.0
Lt. Rock, Ark.	16.5	17.5	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	14 7	15 7	3.0	11 5
Newark	13 7	14.7	3 0	10.5
Annapolis, Md.	15 2	16.2	4.0	11.0
Baltimore	14.4	15.4	4.0	8.5
Cumberland	16.2	17.2	4 0	12 0
Wash'ton, D. C.	12.9	13 9	3.0	10 7
Danville, Va.	17.0	18.0	5.0	11.8
Norfolk	15 5	16 5	5 0	10 0
Petersburg	16 5	17 5	5.0	11 2
Richmond	15 9	16 9	5.0	10 7
Roanoke	17 2	18.2	5 0	12.0
Charles'n, W.Va.	15.7	16.7	4.0	11 5
Keyser	15 3	17 3	4 0	12.1
Parkersburg	14.4	15.4	4.0	10.2
Wheeling	15 6	16.6	4 0	11.4
Charlotte, N. C.	17.5	17.5	6.8	11.0
Hickory	18 8	19 8	6 0	12 6
Mount Airy	18.7	19 7	6 0	12.5
Raleigh	18 4	19.4	6 0	12 2
Salisbury	18.7	19.7	6 0	12 5
Charleston, S.C.	16 5	17 5	6 0	10.2
Columbia	18 4	19 4	6.0	12.2
Spartanburg	18.7	19.7	6.0	12.5

Two cents per gallon discount off retail tank wagon price of gasoline to dealers except Washington, D. C., and State of Maryland and New Jersey, where discount is 3 cents.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16 6	17 6	2 0	15.6
New York*	15 3	15 3	2 0	14 3
Buffalo	15.8	15 8	2 0	14.8
Rochester	16 0	16 0	2.0	14 0
Syracuse	15 8	16 8	2 0	14.8
Boston, Mass.	16 5	16 5	3 0	13 5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18 4	18 4	4.0	14 0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Ohio points	15.0	16 0	4 0	*12 0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	19 0	19.0	6.0	12 5
Augusta	19.0	20 0	6 0	14.0
Macon	19 0	19 0	6 0	12 0
Savannah	17.0	17.0	6 0	12.0
Birm.ham, Ala.	17 0	17 0	6.0	13 0
Mobile	21.5	21 5	5 0	10 0
Montgomery	19 0	19 0	5 0	13.5
Clarks'le, Miss.	18.0	20.0	5.0	13 5
Jackson	17 0	17.0	5.0	11 5
Natchez	18.0	20 0	5 0	13.5
Gulfport	16 0	16 0	5 0	13 5
Vicksburg	17.0	17.0	5 0	11 5
Jack'ville, Fla.	15 0	15.0	7 0	12 0
Miami	19.0	19.0	7.0	13.0
Pensacola	20 0	21 0	7.0	13.0
Tampa	16 0	16 0	7 0	12 0
Lexington, Ky.	18 0	19.0	5 0	12.0
Covington	17.0	19.0	5 0	11 0
Louisville	17 0	18.0	5.0	10 0
Ashland	17.0	19 0	5 0	12.0
Paducah	18 0	18.0	5.0	11.0
Bowling Green.	19.0	21 0	5 0	14.5
Corbin	16.0	19 0	5.0	15.0

A third grade "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6 0
V.M.P. naphtha	12 7	7 5
Cleaners' naphtha	14.2	9 0
Stanisol	14.2	9.0

Tank wagon prices f.o.b. Chicago and Whiting, effective July 3.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial), 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Standard Oil Co. of Kentucky reduced the gasoline tank wagon and station prices in Miami, Fla., to 19 cents each September 19.

Continental Oil Co. made a general reduction in the gasoline prices throughout

(Continued on Page 96)

CRUDE OIL PRICE CHANGES

The South Penn Oil Co. (Joseph Seep Purchasing Agency), effective October 1, discontinued posting a price for Pennsylvania grade oil in National Transit lines. This applies only to the company's purchases in northern Pennsylvania Field. Since the establishment of a zoning system by the National Transit Pipe Line Co. last spring refiners located on the

(Continued on Page 96)

CRUDE OIL PRICES

(Continued from Page 93)

Mirando (Aug. 22, 1931)*	.60
Pettus (Aug. 22, 1931)*	.70
Salt Flat (Aug. 22, 1931)*	.53
Thrall§	
Lytton Springs (Lockhart). See gravity table	
Dobrowolski‖	
Same as Mid-Continent gravity scale up to and including 38-38.9°.	
Somerset¶	
Same as Mid-Continent gravity scale up to and including 38-38.9°.	

*Texas, Humble and Gulf all posted on August 22. †Magnolia Petroleum Co. §Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Ilse, light (Aug. 24, 1931)	$ .75
Ilse, heavy (Aug. 24, 1931)	.53
Fort Collins (Aug. 24, 1931)	.61
Florence (Aug. 24, 1931)	.50
Wellington (Aug. 24, 1931)	.51
Dutton Creek (Aug. 24, 1931)	.60
Rock Creek, Wyo. (Aug. 24, 1931)	.70
Frannie, Light (Aug. 24, 1931)	.53
Frannie, heavy (Aug. 24, 1931)	.42
Salt Creek.....Mid-Continent gravity table	
Big Muddy (Aug. 24, 1931)	.68
Grass Creek (Aug. 24, 1931)	.90
Elk Basin (Aug. 24, 1931)	.90
Lance Creek (Aug. 24, 1931)	1.05
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.98
Lost Soldier (Aug. 25, 1931)	.54
Hamilton Dome (Mar. 14, 1927)	.85
Greybull (Aug. 24, 1931)	.90
Torchlight (Aug. 24, 1931)	.90
Cat Creek (Aug. 24, 1931)	.90
Pondera (Aug. 24, 1931)	.80
Sunburst, Mont. (Aug. 24, 1931)	.90
Hogback, N. Mex. (Aug. 24, 1931)	.80
Lea County, N. Mex. (Aug. 24, 1931)	.85
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (Aug. 24, 1931)	1.00
Maljamar (Aug. 22, 1931)	1.00
Artesia-Jackson (Aug. 22, 1931)	.35

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin, Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Port Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa, by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective August 24, 1931)

Lima	$ .90
Wooster	1.00
Illinois	.80
Indiana	.50
Princeton	.80
Plymouth	Shut in
Western Kentucky	.75
Midland, Mich.*	.72
Dundee, Mich.†	
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale	
Upper and Lower Traverse Sand, Mich.†	
....Same as Mid-Continent gravity scale	
Somerset, Ky. (Sept. 26, 1931)	.65
Hart County, Ky. (Sept. 16, 1931)‖	.60

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‖Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining, Ashland, Ky., and delivered through Cumberland Pipe Line.

MEXICO

Panuco*	$ .44

*F.o.b. ship, based on August transactions and exclusive of taxes and bar dues.

CANADA

Ontario (Aug. 24, 1931):	
Petrolia*	$1.80
Oil Springs*	1.87
Alberta (Aug. 24, 1931):	
Turner Valley:†	
Crude oil 45-49.9	2.03
Crude oil 50 and above	2.65
Crude naphtha	2.12
Discolored naphtha	2.33

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Of Interest to Sales Departments

Large Decrease in Value and Volume Of Plant Products

WASHINGTON, D. C., Sept. 26.—Exports of petroleum products in value, decreased from $47,685,754 in August, 1930, to $22,751,917 in the same month of the present year, this decrease being a trifle less than the decrease in the value of imports of petroleum and products for the same periods, the August, 1930, value of such imports being $13,687,930, decreasing to $6,804,438 in the same month of this year.

Exports of gasoline, naphtha and other finished light products aggregate 6,433,967 bbls. valued at $25,591,195 in August, 1930, decreasing to 4,036,199 bbls. valued at $8,758,292 in the same month of this year. During the same periods imports of gasoline decreased from 1,827,495 bbls. valued at $6,409,246 in August, 1930, to 1,244,164 bbls. valued at $3,499,536 in August, 1931.

Exports of crude amounted to 2,407,479 bbls. valued at $3,477,561 in August, 1930, increasing to 2,866,555 bbls. valued at $1,950,606 in August, 1931, and during the same periods imports of crude decreased from 5,059,427 bbls. in August, 1930, to 2,701,512 bbls.

Exports of lubricating oil decreased from 810,788 bbls. valued at $7,373,661 in August, 1930, to 848,951 bbls. valued at $5,887,177 in August, 1931.

Imports of petroleum and products in August were valued at $6,804,438 or less than half of the imports of August, 1930, when the value was $13,687,930. The eight months' average for the period ending in August was $67,385,584, a decrease from the similar period of 1930 when the value of such imports was $99,953,418.

The reduction of imports of crude oil was still more pronounced, the quantity imported in August being 2,701,512 bbls. valued at $1,748,340 compared with 5,059,427 bbls. valued at $5,272,419 in August, 1930. For the eight months' period imports of crude amounted to 31,799,126 bbls. valued at $28,170,108 compared with 42,065,701 bbls. valued at $44,068,715 for the period ending August, 1930.

Mexico and Columbia showed the greatest reduction in supplying crude oil although there was a falling off of such imports from all countries of record. Crude oil from Venezuela dropped from 1,553,778 bbls. in August, 1930, to 1,144,405 bbls. in August, 1931; Mexico dropped from 1,271,000 to 493,047 bbls.; Netherland, West Indies, from 1,176,000 to 438,000 bbls.

Advanced and refined oil imports decreased from 4,323,975 bbls. in August, 1930, to 3,215,762 bbls. in the same month of this year. During the eight months' period ending August the decrease was from 29,888,197 to 25,870,463 bbls.

Topped imports, including fuel oil, decreased from 2,488,716 to 1,957,659 bbls. and in the eight months' period from 17,871,839 to 16,011,001 bbls. Nearly all of this oil, only 1,698,241 bbls., came from Netherland, West Indies, in August.

There was a pronounced decrease in the imports of gasoline, naphtha and other finished light products from 1,827,495 bbls. valued at $6,409,246 in August, 1930, to 1,244,164 bbls. valued at $3,499,536 in the same month of the present year. The decrease in the eight months' periods was from 11,726,150 in 1930 to 9,804,379 bbls. in 1931. Nearly all of this product came from Netherland, West Indies, or 1,138,387 bbls. in August and 8,887,747 bbls. in the eight months' period of 1931.

Paraffin and paraffin imports in August aggregated 2,275,410 pounds compared with 1,676,518 pounds in August, 1930.—C. E. K.

STANAVO WIDENS ACTIVITIES IN PERFECTING AVIATION PRODUCTS

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

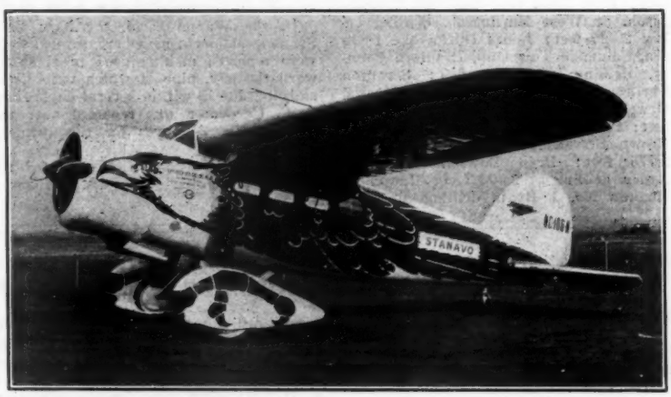
NEW YORK, Sept. 26.—Standardization of engine fuels, lubricating oils, greases and other products used in the aviation industry, marketing of these products on a world-wide scale, ceaseless research in co-operation with leading agencies for the improvement of aviation petroleum products to keep pace with the constant forward steps in engine design, and promulgation of an educational program, have marked the activities of Stanavo Specification Board, Inc., which is now entering its third year of activity as the world's largest factor in the manufacture and distribution of aviation petroleum products. The participating companies are the Standard Oil Co. of New Jersey, Standard Oil Co. of Indiana and Standard Oil Co. of California.

Stanavo has built up a world-wide distributing service, and its products are now regularly stocked in all of the principal countries of the world, with a few exceptions in the Far East, Australia and in Africa. Domestic distribution is handled by Colonial Beacon Oil Co., Humble Oil & Refining Co., Pasotex Oil Co., Standard Oil Co. (Ohio), Standard Oil Co. of California, Standard Oil Co. (Indiana), Standard Oil Co. of Kentucky, Standard Oil Co. of Louisiana, Standard Oil Co. of Nebraska, Standard Oil Co. of New Jersey, and Standard Oil Co. of Pennsylvania. While practically all of its domestic sales are through Standard units, the product may be handled by any marketing agency which complies with the conditions set up by the board.

Foreign Distributions

An impressive foreign distributing system has been developed, including the following: Algeria, Compagni Algerienne des Petroles Standard; Austria, Oil Trading Co.; Belgium, American Petroleum Co.; Brazil, Standard Oil Co. of

(Continued on Page 103)



Lockheed Vega No. 1 of Standard Oil Co. (N. J.) flying fleet, used both as a flying trademark and a flying laboratory by Stanavo Specifications Board. This plane has visited every important airport in the country, crossed the continent five times, made a 6,000-mile tour of Europe, and established a New York to Buenos Aires record of 52 hours 15 minutes actual flying time.

INCREASE BRITISH TAX

NEW YORK, Sept. 26.—Under the provisions of the Emergency Budget for 1931-32 and 1932-33, the British Chancellor of the Exchequer has increased the duty on petrol by 2d. per gallon in Great Britain and northern Ireland, making a total duty of 8d., the increase being made effective as of September 10.

A further order issued by the chancellor provides that heavy oil on which a rebate has been allowed shall not be mixed with dutiable light oil unless the rebate is paid to the government. This step, it was explained, was made necessary by the growing practice of mixing kerosene distillate with petrol to obtain a motor fuel on which only a partial duty had been paid.

NEW GASOLINE INTRODUCED

CHATHAM, Ontario, Sept. 26.—Imperial Oil, Ltd., which on September 3 introduced a new "3-star brand" gasoline in eastern Canada as far north and west as Sudbury, Ontario, is planning to extend distribution throughout Canada. The new brand has been produced from the Sarnia, Montreal and Halifax refineries, and was developed in the Sarnia laboratories, the process being so far exclusive to Imperial Oil, Ltd. The company now sells three grades of gasoline.

ISSUE CREDIT CARDS

NEW YORK, Sept. 26.—Cities Service Co. is planning the issuance to its stockholders in Ohio of credit cards, identifying the stockholders and making it possible for them to buy gasoline and oil at any Cities Service station in the State.

The cards will be issued shortly, and will be valid until January 1, 1932, at which time it will be decided whether to extend the service further. Cities Service filling stations are scattered at many points in the United States, and directors of the company are understood to be considering extension of the credit card plan on a national scale as a step in stimulating sales at these stations.

USE DIESEL ELECTRIC MOTORS

NEW YORK, Sept. 26.—The commissioner general of the State Railways of Siam has announced that the Siamese government has ordered 13 Diesel-electric locomotives, marking the first step in the equipment of the state railways with this type of power.

Other foreign governments, controlling railway operation, are reported contemplating similar action, indicating a substantial increase of foreign Diesel oil consumption.

Motor Fuel Demand Continues to Show Consistent Gains

Gasoline consumption in United States continues to show an increase over last year, according to data covering gasoline tax collections for August. According to reports from 46 states and the District of Columbia for July, gasoline taxes were collected on a total of 1,403,587,000 gallons compared with 1,360,182,000 gallons in July, 1930, an increase of 43,405,000 gallons or 3.2 per cent.

Daily average consumption for July, 1931, was 45,277,000 gallons compared with a daily average of 43,712,000 gallons in June, 1931, an increase in daily average during July of 3.6 per cent. Gasoline consumption in these 46 states and the District of Columbia for the seven months ending with July, 1931, amounted to 7,873,981,000 gallons compared with 7,609,106,000 gallons for the corresponding period of 1930, an increase of 264,875,000 gallons or 3.5 per cent.

For July, the following states reported decreases in gasoline consumption compared with July, 1930: Arkansas, Connecticut, Idaho, Maryland, Montana, Nebraska, New Jersey, North Dakota, Oklahoma, Oregon, Tennessee and Washington. Among the large decreases were New Jersey from 56,422,000 to 50,604,000 gallons; Oklahoma, 32,072,000 to 28,458,000 gallons; Oregon, 19,361,000 to 16,699,000 gallons, and Washington, from 29,721,000 to 24,449,000 gallons.

Minnesota with an increase from 43,210,000 to 50,307,000 gallons, Ohio from 94,767,000 to 99,113,000 gallons and Texas from 76,557,000 to 80,127,000 gallons were among the large gains.

GASOLINE CONSUMPTION BY STATES, JULY, 1931-1930

	Month of July	
	1931 (gallons)	1930 (gallons)
Alabama	15,403,000	15,218,000
Arizona	6,536,000	6,111,000
Arkansas	13,209,000	13,886,000
Colorado	20,660,000	18,541,000
Connecticut	21,870,000	22,967,000
Delaware	3,929,000	3,101,000
Dist. of Columbia	8,581,000	8,244,000
Florida	19,632,000	16,631,000
Georgia	20,556,000	20,035,000
Idaho	6,325,000	6,614,000
Illinois	102,366,000	96,318,000
Indiana	49,414,000	46,660,000
Iowa	44,030,000	40,127,000
Kansas	51,201,000	48,296,000
Kentucky	17,253,000	16,625,000
Louisiana	16,664,000	15,455,000
Maine	14,866,000	13,979,000
Maryland	17,674,000	18,090,000
Massachusetts	59,770,000	55,103,000
Michigan	83,551,000	80,015,000
Minnesota	50,307,000	43,210,000
Mississippi	*12,322,000	10,146,000
Missouri	45,431,000	43,008,000
Montana	3,140,000	3,257,000
Nebraska	23,995,000	24,031,000
Nevada	2,460,000	2,104,000
New Hampshire	3,700,000	3,153,000
New Jersey	50,604,000	56,422,000
New Mexico	5,551,000	5,181,000
New York	157,629,000	154,361,000
North Carolina	22,303,000	21,329,000
North Dakota	13,247,000	13,301,000
Ohio	99,113,000	94,767,000
Oklahoma	28,458,000	32,072,000
Oregon	16,699,000	19,361,000
Rhode Island	10,435,000	8,890,000
South Carolina	10,911,000	10,361,000
South Dakota	15,418,000	14,836,000
Tennessee	18,132,000	20,305,000
Texas	80,127,000	76,557,000
Utah	7,290,000	6,645,000
Vermont	6,027,000	5,736,000
Virginia	23,690,000	22,010,000
Washington	24,449,000	29,721,000
West Virginia	14,916,000	14,739,000
Wisconsin	48,914,000	48,167,000
Wyoming	4,829,000	4,646,000
Total	1,403,587,000	1,360,182,000
Daily average	45,277,000	43,877,000
Increase over previous year:		
Amount of increase	43,405,000	.....
Percentage increase in dly. average	3.2%	.....

*Estimated.

CARL CROMWELL MEETS DEATH IN AUTO CRASH

SAN ANGELO, Tex., Sept. 28.—Carl G. Cromwell of this city was killed Sunday night when an automobile he was driving crashed into a concrete bridge near Sheffield, Pa.

Mr. Cromwell had gone East on a business trip. He flew from Chicago to Bradford, Pa., on Sunday and in Bradford borrowed an automobile from a relative for a trip to Kane, Pa., and other towns in the northern Pennsylvania oil region.

Mr. Cromwell was manager and director for the Texon Oil & Land Co. when it opened the Big Lake Field in Reagan County, Texas, and later opened the deepest oil production in the world, up to that time, in the same county.

At the time of his death, Mr. Cromwell was in the east to complete the financing and the launching of operations by the Apollo Oil Co., of which he was president and general manager. Ten days ago he acquired for eastern associates the interests of George A. Henshaw, Jr., another prominent oil operator, who had organized the company in February.

He was survived by his widow and one daughter, Carlene, 10.

September 1, Mr. Cromwell spudded a test well a few miles southwest of the deep pool with the intention of drilling to 8,000 feet.

Late Fields

(Continued from Page 24)

The Ritz-Canton Field in McPherson County may be extended about 2 miles to the north. Dieter and Youker's No. 1 Lagree, C SW NW, Section 7-19-1w, found a showing of oil and water in the Viola lime at 3,442-44 feet. The operators were preparing to make a production test by swabbing the well, in an attempt to exhaust the water. The test is located about a mile northeast of gas production in the field and 2 miles north of oil production.

R. E. Youker and others' No. 2 Sellers, NW cor. SW, Section 19-19-1w, McPherson County, found the Viola lime at 3,396-3,404 feet. Oil rose 2,000 feet in the hole while the test was drilling deeper.

An important extension was made to the Hugoton gas field when a wildcat test in Haskell County found what is estimated to be 10,000,000 feet of gas a day. Trees Oil Co. and Derby Oil Co.'s No. 1 Warner, C SE, Section 29-30-34w, a wildcat test in the southwestern part of Haskell County, found an estimated 10,000,000 feet of gas a day from sand at 2,615-76 feet. It is believed to be the second largest well ever found in the Hugoton gas field in the southwestern part of the State. Preparations were being made to drill another gas test in the vicinity in the northern part of the same companies' block. The producing horizon is believed to be the Colorado shale. The well extends gas production 25 miles north.

In the Eastborough Pool, Sedgwick County, Magnolia Petroleum Co.'s No. 6 Wheeler, in Section 19-27-2, is estimated to be a 700-bbl. well from the deep sand at 3,233-39 feet. The well started swabbing at the rate of 30 bbls. of oil an hour. No water was showing.

Attempts to extend the Ritz-Canton Pool, in McPherson County, to the southeast was a failure in the chat. A. F. Perry and others' No. 1 Lacquement, in the NW cor. SE, Section 32-19-1w, found a small showing of oil and gas and considerable water in the chat at 2,951-3,004 feet, where it is shut down. It swabbed about 2½ bbls. of oil an hour and considerably more water. The test was a half mile east of production on the southeast edge of the field.

CRUDE OIL PRICE CHANGES

(Continued from Page 94)

line have been contracting oil from producers covering a considerable period of time and at a premium, with the result that the amount of oil available for purchase at the posted price became too small to warrant continuance of a posted price. Pennsylvania grade oil in National Transit lines has been posted as a separate grade since 1925.

The Ashland Refining Co. of Ashland, Ky., effective September 26, reduced the posted price for Somerset, Ky., crude oil in the Cumberland Pipe Line Co.'s line 15 cents per barrel, making the new posted price 65 cents per barrel.

The White Eagle Oil Corp., effective September 28, posted the following prices in Kansas: Group 1, including Eastborough, Wright, Robbins, Greenwich, Lorena and North Greenwood County Pools, 70 cents; Group 2—Eastman, Fox-Bush and Keighly, 68 cents; Group 3—Smock, Sluss, Leon, Weaver, Peabody and Rock, 66 cents; Group 3A—Ritz-Canton, 64 cents; Group 4—Urschell, Florence, Elbing, Nuttle-Koogler, Augusta, 62 cents; Group 5—Gelwick, 46 cents.

TANK WAGON CHANGES

(Continued from Page 94)

its territory on September 22. The new prices are shown in tabular form here.

Standard Oil Co. of New Jersey reduced the kerosene price to 8.5 cents in Baltimore and to 11 cents in Charlotte, N. C., September 15.

Standard Oil Co. of Louisiana reduced the gasoline tank wagon and station prices to 16.5 cents each in Lake Charles, La., on September 19. On September 23 it reduced the gasoline tank wagon and station prices 1 cent throughout Louisiana, Tennessee and Arkansas except in New Orleans, Baton Rouge, Lake Charles and Bristow. On September 26 these prices were reduced to 15.5 cents each in Lake Charles.

Standard Oil Co. of Indiana reduced the gasoline station price to 14.5 cents in Detroit, September 28. On September 26 this price was reduced in St. Louis to 11 cents and on the same day was advanced to 12.4 cents.

ONE NEW WELL IN TIOGA FIELD AND TWO WELLS NEAR COMPLETION

CORNING, N. Y., Sept. 26.—The North Branch Development Co. completed a gas well in the Tioga Field in Tioga County, Pennsylvania, in its No. 1 Barcroft and it started off at 6,000,000 feet. It was 4 feet in the Oriskany sand. Deeper drilling on the following day did not materially increase the volume of gas.

The Penn United Gas Co. had two wells near completion when this report was written. They are No. 1 Ida Russell on the west side of the Tioga Field in Tioga County, Pennsylvania, and No. 1 George Boom in the same field. No. 1 Russell had set pipe and was waiting for cement to set before drilling in. No. 1 Boom was drilling below 3,150 feet.

Other wells in the Tioga and Bradford Counties which were at interesting depths were Wells Co.'s No. 1 County Farm, fishing at 4,910 feet; Morgan & Hague's No. 1 Whitney, Farmington Township, fishing at 4,410 feet; Taylor Lynch's No. 1 Loveless, drilling at 5,300 feet; Elkland Oil & Gas Co.'s No. 1 Van Duzen, Farmington Township, shut down at 4,585 feet; same company's No. 1 Frisbie, Nelson Township, shut down at 4,200 feet; Allegany Gas Co.'s No. 1 Davey, Richmond Township, hole trouble at 5,300 feet; Penn United Gas Co.'s No. 1 Bradford County Fair Grounds, Towanda, cementing at 5,125 feet; Cities Service Gas Co.'s No. 1 Hettick, Towanda, Bradford County, drilling at 4,865 feet; York Penn Gas Co.'s No. 1 Dickinson, at West Burlington, drilling below 2,425 feet; James Duff's No. 1 Olsen, Columbia Township, Bradford County, drilling at 4,904 feet; Scranton Springs Water Co.'s No. 1 C. V. Morris, Orwell Township, drilling below 4,250 feet; Penn York Gas Co.'s No. 1 P. M. Brown, Stevens Township, drilling below 2,775 feet; Brad Lawrence's No. 1 Ryder, drilling at 2,500 feet; Morgan & Hague's No. 1 Ryan, drilling at 4,300 feet; Lycoming Natural Gas Co.'s No. 1 Wheeler, bailer in the hole at 5,008 feet; Lester and others' No. 1 William West, south of the town of Tioga, drilling at 2,800 feet.

In addition to the above there are numerous wells drilling at lesser depths, new locations made and rigs up.

The Addison district in Steuben County, New York, is to have another test. Tri-State Gas & Electric Co. has rig up and was ready to start drilling on No. 1 Lewis Hill.

The Elmira Natural Gas Co.'s No. 1 Eugene Barthod, on the River Road near Elmira, was drilling below 2,400 feet. The same company recently brought in a 500,000-foot gasser near Portville, Cattaraugus County, at 1,200 feet.

Widespread wildcatting, in a constant search for new fields, is reported by gas operators who travel through central New York State. The latest wildcat ventures, distant from the fields near this city but nevertheless important, are near Castile Center, Wyoming County; Perry, Wyoming County, and Portage, Livingston County.

Drillers were rigging up on a farm near Castile Center for the Pawnee Gas Co., composed of a group of Charleston, W. Va., business men. The Brandywine Utilities Co. is scheduled to spud in Thursday on a well owned by it near Portage. Other New York State ventures have been carried on near Jordan, Onondaga County.

In the Wayne Field, the New York State development near here, several wells were reported making good progress toward the pay, nine of which were listed as being due in within several days' time. J. F. Carpenter was reported near the pay on No. 2 Hayes for the Belmont company.

The Wayne village field reported six wells, all drilling some distance away from the pay.

A.I.M.E. MEETING TO CONSIDER CONSERVATION

The fall meeting of the petroleum division of the American Institute of Mining and Metallurgical Engineers to be held in Houston, Tex., October 2, 3 and 4 is attracting considerable attention among engineers, production men and executives of the oil companies and is drawing to Houston many men of national prominence. The papers to be presented at the meeting center around conservation problems.

Chase E. Sutton, general manager for the Pure Oil Co., Houston, Tex., is chairman of the general committee and is being assisted by W. W. Scott, A. G. Wolf and D. M. Cashin, all of Houston, in working out details for the meeting.

The headquarters for the meetings will be in Hotel Lamar, Houston, and the first technical session will begin at 9:30 a.m., Friday, October 2. Other sessions will be held that afternoon and on Saturday, October 3. On Sunday, October 4, a trip has been arranged to Sugarland oil fields and a visit to Boling sulphur mine and plant which will occupy the entire day.

CHARLES W. SUHR DIES

Funeral services for Charles W. Suhr, 27, son of C. L. Suhr, president of the Pennzoil Co. of Oil City, Pa., were held September 26 at Oil City. Mr. Suhr was returning to his home in Los Angeles when he was instantly killed in an airplane accident near Lansing, Kans. In addition to his parents and one brother, Henry Suhr, the deceased is survived by his widow and twin daughters.

COLON PRODUCTION

Production of Colon Oil Corp.'s subsidiary in Venezuela, for the week ended September 19, was 149,976 bbls.

H. FOSTER BAIN GOES WITH COPPER INSTITUTE

By L. G. E. Bignell

At a special meeting of the Mid-Continent section of the American Institute of Mining and Metallurgical Engineers held in Tulsa, September 26, interesting talks were made by Robert E. Talley, president of the A.I.M.E., Dr. H. Foster Bain, secretary, and A. B. Parsons, assistant secretary. David Trax, vice chairman of the section, presided.

Mr. Talley outlined the progress made by the Institute during the past year and the plans and hopes for the future. He stressed the desire of the directors to aid and assist junior engineers in their work and stated that plans are being made to form various committees that will direct this work in all sections. Economics with relation to engineering will be especially stressed and the young engineer will be directed to the importance of joining with his technical skill the sound principles of good business.

Mr. Talley made the announcement at the end of his address that Doctor Bain for many years secretary for the Institute was leaving November 1 to join the Copper and Brass Research Association to aid the copper and brass industry in finding new uses for greater volumes of copper and brass.

Doctor Bain outlined some of the things he had observed during investigations into the use of copper and brass in this country and in Europe.

He explained how science is making it possible to produce copper and zinc of such purity that when these two metals are alloyed to make brass hot rolling of brass into sheets, tubes and rods is now possible. Progress of this kind has been made possible by the work of the research metallurgist and chemist who are aiding the workers of copper and brass to attain wider ranges of application of these metals to the arts.

Doctor Bain was followed by his successor, as secretary for the Institute, A. A. Parsons, who made a short statement outlining some of his plans for the future.

START INVESTIGATION OF TEXAS GAS RATES

FORT WORTH, Tex., Sept. 25.—An investigation of the Lone Star Gas Co. will be started by the Texas Railroad Commission, Commissioner Pat M. Neff announced in Fort Worth Friday before a meeting of the Texas League of Municipalities gathered to discuss gas rates.

The commission will investigate also the United Gas Co. properties and other utilities in the order of their importance.

The city officials voted to prepare and pass as soon as possible after their return to their homes, ordinances fixing a "fair and reasonable" gas rate in their municipalities, to become effective on a certain date. Wichita Falls already has taken this step.

Another meeting on utility rates probably will be held in Fort Worth by the league the last of October, Harvey W. Draper, Houston, executive secretary of the league, announced.

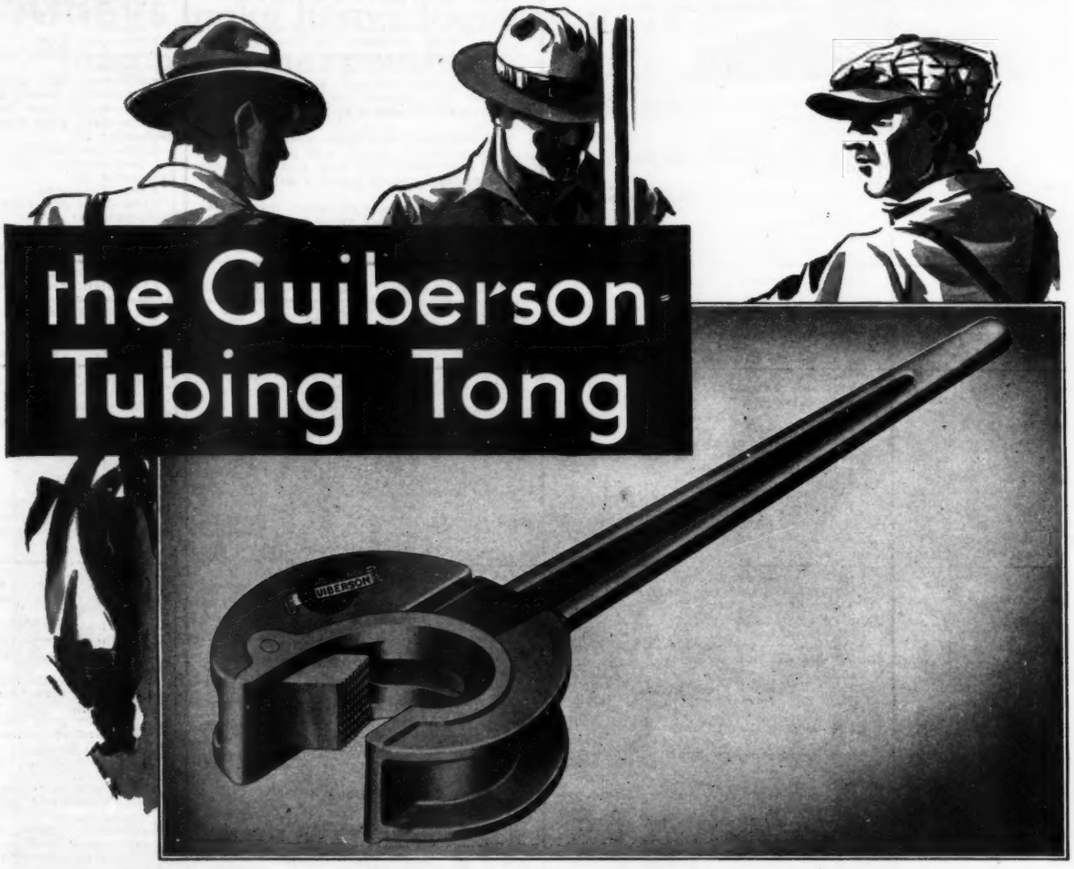
Mr. Neff pointed out that the commission has only appellate jurisdiction in rate making and stressed the fact that cities should handle their own gas controversies.

"The job of the commission is to get all the information about the cost of transporting the gas from the source to the city gates. If the city has this, it can wage its own fight."

C. M. Chambers, mayor of San Antonio, which now is waging a fight for lower utility rates, urged that the state have exclusive jurisdiction over all public utilities instead of having the jurisdiction split up between city, state, rate making bodies and federal courts.

Officers of the league in attendance were Bouldin Rector, Austin city attorney, president; Mayor Ernest Thompson, Amarillo, first vice president; Mr. Draper, Mayor Frank Morris, Jr., Gainesville, second vice president; City Commissioner Charles T. Butler, Beaumont, third vice president.

"CERTAINLY HAS A FIRM HOLD ON THE SITUATION"



That's what they all say when they see the Guiberson *Tubing* Tong take hold of the tubing.

Anybody who has ever handled a Guiberson *Tool Joint* Tong knows what to expect in the Guiberson *Tubing* Tong, even if he's never seen one.

Built on the same principle of automatic action, the Guiberson *Tubing* Tong has all the other fine points of its famous predecessor. It is light in weight, with ample strength for safety. It is easily engaged with the tubing and may be released with one hand. The body is so designed that the entire load that comes on the die is transferred directly to the body. Patent Pending.

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GUIBERSON
BETTER BE SAFE THAN SORRY

DEEP TEST OF PENN-MEX FUEL CORP. DRY

(Continued from Page 24)

1,033—sticky shale.
1,038—shale.
1,085—sandy shale.

March 22:
1,122—sandy shale.
1,158—sandy shale.
1,177—hard sandy shale.

March 23:
1,184—hard sandy shale.
1,187—sandy shale.
1,190—sticky shale.
1,244—sandy shale.
1,251—shale.
1,270—hard sandy shale.
1,273—hard shale.
1,279—sandy shale.

March 24:
1,295—hard sandy shale.
1,302—sandy shale.
1,326—shale.
1,345—hard sandy shale.
1,350—sandy shale.

March 25:
1,353—hard sandy shale.
1,392—shale.

March 26:
1,425—shale.
1,497—shale.
1,511—sandy shale.
1,513—hard sandy shale.
1,518—hard shale.

March 27:
1,548—hard shale.
1,552—hard shale.

March 28:
1,559—hard shale.
1,578—hard sandy shale.
1,595—hard sandy shale.
1,598—sandy shale.
1,603—shale.

March 29:
1,618—hard shale.
1,641—sharp shale.

March 30:
1,675—shale.
1,704—shale.

March 31:
1,739—shale.
1,765—shale.

April 1:
Fishing for tools.
1,775—shale.

April 2:
Fishing for drill pipe.
1,786—hard sandy shale and shells.
1,800—shale.

April 3:
1,823—shale.
1,868—shale.

April 4:
1,880—shale.
1,900—hard shale.
1,908—hard shale.
1,913—brown sandy shale.
1,915—hard sandy shale.
1,920—sandy shale.

April 5:
1,928—sandy shale.
1,935—hard sandy shale.
1,947—sandy shale.
1,956—sandy shale.
1,978—shale.
1,982—shale.
1,987—hard sandy shale.
1,996—sticky shale.
2,021—shale.
2,023—hard sandy shale.

April 7:
2,042—hard sandy shale.
2,057—shale.
2,086—anhydrite shells.

April 8:
Fished out drill collar and short bit and one joint pipe.
2,096—shale.

April 9:
2,111—shale and shells.
2,122—shale.
2,127—hard sandy shale.
2,130—anhydrite shells.
2,136—sticky shale.
2,138—shells.

April 10:
2,158—shells.
2,161—hard sandy shale and shells.
2,166—shale.
2,171—blue lime.
2,173—shale.

April 11:
2,182—broken lime.
2,178—corrected measure.
2,187—blue sandy lime.
2,197—shale.

April 12:
Reaming after core at 2,190.
2,198—hard sandy shale.
2,202—indeterminable.

April 13:
2,209—hard and soft blue shale.
2,209—shale.
2,229—thin hard sandy shale and shells.

April 14:
Drilled after 6-in. core barrel with 21½-in. fishtail.
2,236—lime.
2,237—shale; shut down for orders.

April 15:
2,231—corrected measure.

April 16:
2,236—lime with shale.

April 17:
San Felipe lime. Put up 8 line and casing line.

April 18:
Running 16-in. casing.

April 19:
Landed 108 joints; cemented.

May 20:
Put up 810 pounds connection test; 650 pounds preliminary casing test.

May 21:
2,237—San Felipe.
2,242—San Felipe.

May 22:
2,248—San Felipe lime.
2,256—San Felipe.

May 23:
2,267—San Felipe.
2,268—Tamasopa.

May 23:
2,279—Tamasopa with green Bentonite breaks.

May 24:
2,280—brown lime.
2,282—Tamasopa.

May 25:
2,285—Tamasopa.
2,295—Tamasopa.

May 26:
2,299—gray Tamasopa with crevices.

May 27:
2,311—Tamasopa.
2,313—hard Tamasopa.
2,317—soft Tamasopa.
2,324—broken Tamasopa.

May 28:
2,327—Tamasopa; temperature returns of 118 degrees.
2,352—soft Tamasopa.
2,355—hard Tamasopa.
2,358—soft Tamasopa; 100,000 bbls. salt water per day.

May 29:
2,371—Tamasopa; drilling pressure 250 pounds.
2,380—Tamasopa.
2,382—crevices.
2,395—Tamasopa.

May 30:
2,407—Tamasopa.
2,411—Tamasopa.

May 31:
2,415—Tamasopa.
2,424—Tamasopa.

June 1:
2,426—porous Tamasopa.
2,434—porous Tamasopa.
2,435—soft Tamasopa.
2,442—Tamasopa.

June 2:
2,465—Tamasopa.
2,466—firm Tamasopa.
2,468—soft Tamasopa.
2,475—broken Tamasopa.

June 3:
2,479—brown lime.
2,480—shale.
2,483—porous brown limé.
2,486—hard lime.

June 4:
2,496—Tamasopa.
2,500—broken lime; 6-foot recovery brown lime; cream streaks; 1 foot green shale; small porosity; little oil.

June 5:
2,510—Tamasopa.
2,510—broken cream and brown lime with oil and gas in crevices.

June 6:
2,513—Tamasopa; going in with 7⅝ Reed core bit. Purpose of 7⅝ is to rat hole ahead.
2,521—broken lime; commenced rathole with 7⅝ Reed core bit on bottom; got no core and left half of cutters in hole (4).

June 7:
2,521—broken lime; down for orders; preparing to fish.
2,523—waiting for orders; ran core barrel for four cutters, 3 pins, and washers; drew a blank; need a basket.

June 8:
2,523—lime; ran 6⅝ basket.
2,530—broken lime; recovered 1½ cutters with basket.

June 9:
Reamed 2,526-2,530 Reed core bit; lost one cutter.

June 10:
2,532—lime; ran 12½ 8 tooth basket; lost one finger and got large piece cabbage shale; made and ran another; pulled out 3 stands.

June 11:
2,532—pulled out basket; back in with same; ran 12½ 8 tooth basket twice; first run not closed; second got piece shale, half 14⅞ core bit pin and finger 12½ inch basket lost on report No. 152.

June 12:
2,533—Tamasopa lime; no recovery of core.
2,536—lime with shale breaks.

June 13:
2,537—dark brown lime; running 14⅞ Reed roller bit on junk.
2,535—top Edwards lime ??
2,538—black lime.
2,542—gray lime.
2,544—gray lime, chert breaks.

June 14:
Run old set of 14⅞ Reed roller bit cutters.
2,554—hard gray lime.
2,558—extra hard pearl lime.
2,571—soft white lime; drilling 14⅞ Reed.

June 15:
2,587—white lime.
2,590—porous lime.
2,606—white lime; pulled out to look at bit.

June 16:
2,618—hard white lime.
2,628—hard gray lime.
2,626—soft white lime.
2,635—hard gray lime.

June 17:
2,650—gray and white hard lime.
2,655—3-foot core showed Tamasopa.

June 18:
2,662—gray Tamasopa lime.
2,674—gray lime.
2,694—white lime; Tamasopa lime predominates.

June 19:
2,700—hard white lime; Tamasopa lime predominates.
2,705—lime; this core showed nearly all Tamasopa.

June 20:
Put on new casing line; waiting on orders.

June 21:
2,713—hard brown lime.
2,723—broken lime (hard spots); core shows very porous cavernous lime, dark colored in spots, little oil, one piece of green lime.

June 23:
2,732—white lime.

June 24:
Reamed 2,400 to bottom with 14⅞; Reed double 3 point reamer and new head.

June 25:
Pulled out to run feeler of 13⅜ pipe.

June 26:
Started to pump mud at 11:35 a.m. to kill salt water pressure, 245 pounds; pressure down to 60 pounds.

June 27:
Pumping mud into hole; pumping in shale mud 10½ pounds per gallon; pressure down to 25 pounds at 12:00 p.m.?

June 28:
Pumping mud into hole; spent 10 hours cussing mud pumps; well pressure zero at 12:00 p.m.; well open 2-in. choke for 2 minutes; made about 5 gallons mud.

June 29:
Mixing mud and pumping into hole; opened 8-in. relief valve and well pressure jumped from 10 pounds to 35 pounds; it takes 40 pounds pressure to force 10½ pounds mud into hole.

July 1:
Well not pumped; pressure rose from 43 to 46 pounds.

July 2:
Cleaning up and repairing rig; got pressure down to 7 pounds; using heavy mud.

July 3:
Built steam mud mixer.

July 4:
Down but not out for the Fourth.

July 5:
Mixing mud; mixing 13 pounds mud.

July 7:
Flot valve plugged with trash carried by mud; slips failed to hold pipe while filling up 6⅝ drill pipe—dropped 18 stands and core barrel; cleaning up.

July 8:
Come out and run blank joint back in, was snubbing 2 stands in when line broke (1-in. steel line) and blew drill pipe out; could not close valve.

July 9:
Come out at daylight and located drill stem on top rotary then closed valve after a little working back and forth.

July 11-16:
Cleaning up, mixing mud and repairing.

July 16:
Pumped in 4,000 ft. of 10 pound shale mud; well almost dead.

July 19:
Well pressure 0; ran in with 37 joints 6⅝ drill stem to screw on to 54 joints in hole; screwed into 54 joints and pulled flag up to rotary table.

July 20:
17 joints 6⅝ drill pipe unfit for further use.

July 22:
Preparing to run 13⅜ casing while waiting for blowout preventer.

August 4:
Numerous small jobs in and around rig.

August 5 and 6:
Numerous small jobs.

August 6:
Ran in 40 joints 13⅜; using Baker Burch cement shoe.

August 7:
Landed 97 joints safely on bottom.

August 8:
Cemented 13⅜ casing with 327 sacks cement.

August 13:
Large crevice between 13⅜ and 16 casing; pumped 200 sacks cement into crevice.

August 27:
Drilled out plug and tested 800 pounds.

August 28:
Drilled cement out of bottom joint.
2,739—porous gray lime; got small slub of salt water.

August 29:
Regan head now had hydraulic steel nipples and 1,000-pound flange gates between 16¼ and 13⅜; will require 10½ pounds mud to hold water pressure.

August 30:
Circulated medium heavy shale mud at 75 pounds pressure; shut in pressure 50 pounds.
2,741—porous gray lime; 29½ turns close 13⅜ valve.

August 31:
2,759—porous gray lime; increase in salt water closed in pressure 207 pounds.
2,789—porous gray lime with brown plugs; well making 2,500 bbls. of black sulphur water with very little gas.

September 1:
2,809—Tamasopa.
2,814—gray lime with brown plugs; core showed top white and barren bottom light brown Tamasopa stained with black oil—lime full "worm holes" with vertical cleverages; water volume noticeably diminished—gas increased.

September 2:
2,825—gray lime.
2,842—gray lime, 1,700 bbls. water daily.

September 3:
2,858—hard gray lime.
2,865—gray lime.

September 4:
2,882—gray lime.
2,892—hard cream colored lime with thin Bentonite (green shale) breaks.
2,896—porous lime.
2,904—lime (hard and soft spots).

September 5:
2,921—gray lime.
2,925—brown lime (soft).
2,946—cream lime (hard).

September 6:
2,947—gray lime.
2,952—Tamasopa.

September 7:
2,963—gray lime.
2,982—hard gray lime and light colored Tamasopa.

September 8:
2,985—hard gray lime.
2,990—soft brown lime.
3,012—light gray lime and green shale breaks.
3,020—gray lime.
3,025—hard white lime.

September 9:
3,033—very light gray lime (hard).
3,041—white, brown and gray lime.
3,061—brown lime Tamasopa.
3,078—light gray lime.

September 10:
3,106—lime Tamasopa core not very porous and medium hard.

September 12:
3,113—Tamasopa.
3,129—light gray lime and hard Tamasopa.

September 13:
3,145—hard gray lime; temperature of well 146.3 Fahrenheit (salt water).

September 14:
3,170—Tamasopa lime.
3,173—light gray Tamasopa.

September 15:
3,181—hard gray lime; core showed porous Tamasopa lime.
3,186—hard gray lime.
3,195—hard Tamasopa lime.
3,205—hard gray lime; increase in gas and water at 3,186; salt water temperature 145 degrees Fahrenheit.
3,213—hard gray lime.
3,224—hard white lime.

September 16:
3,224—shut down for holiday today.

September 17:
3,227—coring.

September 18:
3,234—Tamasopa lime.
3,240—hard gray lime.
3,254—porous brown lime; water increased.

September 19:
3,263—hard gray lime.
3,268—Tamasopa; drilling through 2-in choke under 205-pound pressure.
3,268—light brown lime.

September 20:
3,295—light brown lime.
3,297—hard gray lime.
3,301—coring; new light color on bottom.

September 21:
3,309—hard white lime.
3,318—light gray lime.

September 22:
3,327—light gray lime.
3,334—hard white lime.
3,344—blue shale.
3,365—white lime.

September 23:
3,380—hard white lime.
3,395—hard white lime.

September 24:
3,410—hard white lime.
3,440—white lime with small breaks of blue shale and soft brown lime.

September 25:
3,459—hard white lime and light brown lime.
3,471—hard white lime.

September 26:
3,478—light brown lime.
3,485—core showed Tamasopa lime.

September 27:
3,487—hard white lime; took bonet off 8-inch valve in cellar to clean out, bad cement; ran in 12⅜ Reed bit.
3,507—hard gray lime.

September 28:
3,515—hard white lime.
3,524—hard gray lime.

September 29:
3,548—light brown lime.
3,559—hard gray lime with breaks of light brown lime.

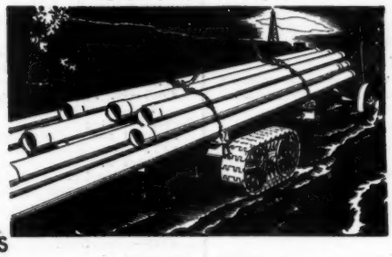
September 30:
3,562—light brown lime.
3,570—Tamasopa lime; hard gray with break of brown; finished pulling out core bbl.; recovered 2 in. of core—went in hole with 12⅜ roller bit (Reed).

October 1:
3,585—gray Tamasopa (hard).
3,609—Tamasopa lime; well pressure closed in 245 pounds through 2-in. choke 165 pounds—through 8-in. flow line.

October 2:
3,636—Tamasopa lime; increase in gas and more salt water between 3,620 and 3,636; well pressure 245 through 2-in. choke, 234 pounds 8-in. valve wide open 50 pounds.
3,653—Tamasopa lime; repaired both pumps and cleaned all flues of boilers.

October 3:
3,657—Tamasopa lime; gray lime (hard).
3,664—Tamasopa lime.

October 4:
3,664—core from 3,657 to 3,664 very hard Tamasopa lime; pulled out Reed core bit, put in new rubber sleeves in stuffing box and started in 12⅜ Reed bit, 20 stands in hole.
3,670—Tamasopa lime; finished going in



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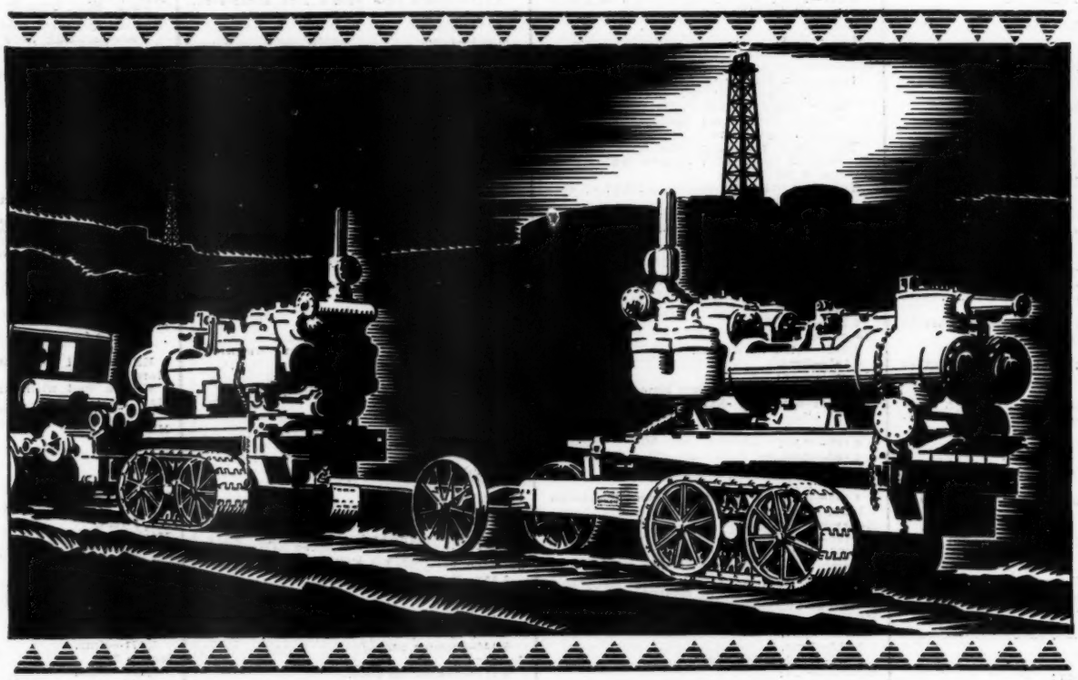

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hole, repaired pump—closed line pressure 225 pounds through 2-in. choke 200 pounds.

October 5:
3,684—Tamasopa hard gray lime and soft brown lime.
3,703—Tamasopa; hard gray and brown lime.

October 6:
3,731—light brown lime; Tamasopa.
3,752—light brown lime with breaks of hard gray lime.

October 7:
3,758—soft Tamasopa.
3,763—broken lime.

October 8:
3,767—hard brown Tamasopa core shows a light color Tamasopa, not very porous.
3,779—hard brown lime.
3,870—porous lime.

October 9:
3,799—hard brown Tamasopa.
3,806—shale (color ??).
3,819—lime (soft and hard).

October 10:
3,839—brown Tamasopa lime soft; pulled out 55 stands, put guards on old Regan casing block and took off old casing line.

October 11:
Strung up Regan traveling block, started in hole.
3,843—core showed cream Tamasopa with large green worm holes.

October 12:
3,844—light brown Tamasopa lime.
3,849—shale and lime shells.
3,850—lime; the shale was in very thin streaks.

October 13:
3,864—hard gray Tamasopa.
3,876—brown Tamasopa lime.

October 14:
3,885—hard gray Tamasopa.
3,895—hard gray Tamasopa.

October 15:
3,905—hard gray Tamasopa.
3,906—lime.

October 16:
3,913—light brown Tamasopa.
3,919—lime.

October 17:
3,931—hard light brown Tamasopa.
3,940—lime.

October 18:
3,961—drilled like shale; bound and dragged like pitch sand in Trinidad.
3,961—asphalt crevices.
3,968—lime.

October 19:
3,971—light brown lime.
3,972—asphalt crevices.
3,976—lime.
3,977—lime.
3,981—asphalt crevices; these asphalt crevices seem to carry considerable gas which dissipates with the asphalt.

October 20:
3,989—light brown lime; pulling tools to core; ran core barrel.

October 21:
3,993—lime (core); shut down account of flood.

October 27:
Core showed a hard brown lime with some small holes; it has almost lost the Tamasopa look.
3,995—lime.

October 28:
4,005—hard gray Tamasopa; blew up drilling hose.
4,014—hard lime; plenty remarks on drilling hose.

October 29:
4,021—gray lime with shale breaks; right smart rain.
4,027—hard lime.
4,028—extra hard lime.
4,036—soft lime; notice, samples show distinct signs black lime beginning 4,027.

October 30:
4,047—hard gray lime; shut down for boiler repairs.

Copy of letter from:
Compania Mexican de Petroleo
"Union" S. A.
October 25, 1930
Avenida Hidalgo No. 1
Apartado 354
Tampico, Tampa

Mr. J. M. Reardon, Manager
Penn Mex Fuel Oil Corp.
Tuxpan, Vera Cruz

Dear Sir:

At 3,911 feet your No. 35 Jardin well appears to be in lower part of the Edwards limestone of lower Cretaceous age. It is possible that the part containing the black chert is missing either due to an unconformity at the top of the Edwards or the black chert series was not deposited in the original condition.

Unless several hundred feet of shale is drilled through in this well it is unlikely that the salt water can be cemented off permanently. Just what this shale would be I do not know unless it be the oil shale in the Jurassic below the lower Cretaceous. The Jurassic may be reached from 4,500 to 5,000 feet. In case you have to cement casing before that depth it would seem to be immaterial where you might decide this to be necessary. If several hundred feet of shale can be found then it would be reasonable to believe you could cement off the salt water.

Yours very truly
(signed) JOHN A. HENDRICKS,
Manager, Union Oil Co. of California.

November 1:
Shut down for boiler repairs; repairs completed.

November 3:
4,070—gray lime; hose leaking, so hung up to think it over (Gattrell).

November 3:
4,073—hard light brown lime; lots of trouble to stop rotary hose from breaking.
4,075—jet in cellar blew up; have to fix check valves.

November 4:
Mucked out cellar; unplugging valves.
4,077—light brown lime.

November 5:
4,087—gray lime.
4,105—pearl gray with breaks of milky white lime.

November 6:
4,119—gray lime (very light).
4,138—gray lime.

November 7:
4,155—gray lime.
4,180—light brown lime.

November 8:
4,186—gray lime; general repairs and replacements.
4,193—cored.

November 9:
4,195—lime.

November 10:
4,206—lime.
4,230—hard green lime.

November 11:
4,233—gray lime.
4,249—lime; notice, derrick needs renailing (Gattrell).

November 12:
4,261—lime.
4,264—lime gat; drilled 3 feet in 3 hours.

November 13:
4,281—soft lime core 6 feet long showing plenty of asphalt; light brown streaks of gray lime highly creviced; showing vertical transverse faulting and sedimentary quartzite.
Two hours removing core from catcher, down 2 hours with broken engine.

November 14:
Trouble getting to bottom account of cuttings and asphalt in hole.
4,297—lost 3 hours clamping short piece on dead end drilling line to (lime) improve spooling on drum.

November 15:
4,311—lime.
4,328—lime.

November 16:
4,348—lime.
4,368—lime.

November 17:
4,373—extra hard lime.
4,383—lime.

November 18:
4,397—core shows brown lime on top and Tamasopa and shale on the bottom.
4,404—lime.

November 19:
4,426—lime.
4,434—lime.

November 20:
4,444—lime.
4,449—core of porous brown Tamasopa lime.

November 21:
4,452—lime.
4,466—lime.

November 22:
4,480—lime.
4,492—lime (dinosaur molars and Cretaceous butter).

November 23:
4,505—lime.
4,513—lime.
4,516—shale (doubtful).

November 24:
4,517—lime.
4,526—lime.

November 25:
4,527—core porous hard brown lime.
4,556—lime.

November 26:
4,546—lime (hard gray).
4,562—lime.

November 27:
4,573—lime.
4,582—lime.

November 28:
4,592—lime.
4,597—lime core shows light brown fragments and crystals; an erosive conglomerate porous as coral; drills easy, hardness of ±6.

November 29:
4,616—lime (very porous).

November 30:
4,621—lime, hard.
4,641—lime, porous.
4,668—lime.

December 1:
4,685—lime; got hung up trying to clean cuttings out of hole; got free and then washed hole with mud.

December 2:
Changing rotary tables; general repairs and overhauling.

December 3:
4,690—core of dark lime.
4,698—lime; this lime drills uniformly harder and seems devoid of porous streaks encountered about 4,550 feet.

December 4:
4,719—gray porous lime.
4,735—lime.

December 5:
4,753—lime.
4,757—lime.

December 6:
Ran in core bit.
4,762—lime; worked over stuffing box and hold-down bolts which are badly eaten by chemical reaction of water. Core shows 1-inch flakes of gray brown lime. Large pores, impregnated with asphalt lime devoid of crooks but highly gnarled. Looks like Tamasopa immediately below San Felipe.

December 7:
Drill stem stuck by cuttings binding it.
4,783—lime.

December 8:
4,801—lime.
4,808—lime, hard.
4,820—lime, porous.

December 9:
4,832—Tamasopa lime with asphalt breaks.
4,824—coring lime.

December 10:
4,839—lime, dark brown.
Full tour of connection work.

December 11:
Working on 3-inch connections.
Shut down for new 6⅝-inch stuffing box bolt.

December 12:
4,868—lime.
4,879—black lime core shows a little shale.

December 13:
Going in hole with reed core barrel.
4,884—core shows brown lime with about 4 inches of shale; no asphalt or black lime.

December 14:
4,892—brown lime.
4,912—lime.

December 15:
4,928—lime.
4,936—lime.

December 16:
Changed valve on manifold; started in hole.
4,941—brown lime with a little shale core.

December 17:
4,943—lime.
4,959—lime.

December 18:
4,970—lime.
4,972—lime.

December 19:
4,976—coring.
4,978—core of dark conglomerate lime mixed with green shale.

December 20:
Took down crownblock and changed valve on pump manifold.
Put up new crownblock.
4,980—lime.

December 21:
5,000—soft lime.

December 22:
Pulled out to core.
5,005—lime.

December 23:
Waiting on orders.
5,032—soft lime.

December 24:
5,046—hard lime.
Finished pulling out and shut down for Christmas.

December 26:
Started in to core.
5,057—lime.

December 27:
5,059—lime.
5,090—lime (soft).

December 28:
Pulled out to core.
5,100—lime.

December 29:
Took down crownblock; repairing rig.

January 4:
Repaired steam and water lines.
5,117—lime.

January 5:
5,123—lime.
5,135—lime.

January 6:
5,140—lime.
Went in hole to core.
5,146—porous lime.

January 7:
5,153—nonporous lime.

January 8:
5,158—lime.
5,168—hard solid lime.

January 9:
5,169—hard lime.
5,171—soft lime.
5,180—hard lime.
5,190—solid lime.

January 10:
5,194—hard lime.
5,200—lime; made general repairs.

January 12:
Mixing mud to kill well; killed well with shale mud.

January 14:
Drill stem bound with cuttings.

January 15:
Building casing rack.

January 19:
Preparing to put on Cameron blowout preventer.

January 21:
Replaced blocking under derrick floor.

January 22:
Finished connecting up mud mixer.

January 24:
Pumped in 320 cubic feet of mud.

January 25:
Ran 920 feet 9⅝-inch casing A.P.I.
2,720 feet of pipe in hole.

January 27:
5,200 feet of casing cementing with 500 sacks cement.

January 28-31:
General cleaning and repairing.

January 31:
Mixing mud and pumping to No. 63 Paso Real.

February 2:
Preparing to pump cement down between casing.

February 3:
Pumped 515 sacks cement between 13⅜ and 9⅝-inch casing; pressure, none; cement acted as though it had met bottom plug.

February 4:
Making up tool joints.

February 6:
Tested cementation top 9⅝; after letting out 360 cubic feet mud, pressure rose from 165 to 205; killed well again.

February 7:
Cleaning detritus from slush pits.

February 12:
Pumped in 100 sacks cement followed by shale mud; cement stopped at 1,600 feet and would not go any deeper.

February 16:
Straightening drill stem; (the days in between the various entries have been taken up with general boiler work and cleaning up).

February 28:
Still doing general boiler work, fixing and cleaning rig, blowout preventer, mud pits, etc.

March 10:
Intervening time spent in doing various jobs of cleaning up and rigging up.
Drilled out plug and put on first test.

March 11:
Waiting on inspector.
5,207—hard lime.

March 12:
5,209—lime; green salt water at 5,209 feet flows at rate of 800 bbls., 230 pounds pressure.
5,215—lime.

March 13:
5,235—lime has hard and soft places in it; increase in water and gas at 5,226 feet.
5,267—lime; increase water and gas; well now making 4,300 bbls. per day.

March 14:
5,280—lime; trouble cleaning out cuttings.
5,306—lime; increase water and gas; well now making 7,000 bbls. a day.

March 15:
5,310—lime.
5,315—lime core of white porous lime.

March 16:
5,320—lime.
5,353—lime.

March 17:
5,397—lime.
5,428—lime.

March 18:
5,467—lime.
5,473—lime; salt water 132° F.

March 19:
5,480—core of gray lime with pores about as large as a thumb nail; lime has a noticeable hardness.
5,530—lime.

March 20:
5,572—soft lime.
5,591—lime.

March 21:
Went in to core and left two of six cutters in hole.
Killing well with mud.

March 22:
Killing well with mud.

March 23:
Circulating.

March 24:
Fishing.

March 25:
Fishing.

March 26:
Fishing.
5,596—lime; running on cutters and made 4 feet.

March 28:
5,598—lime; running on cutters.
5,602—lime; running on cutters.

March 29:
5,605—lime.
5,616—lime.

March 30:
5,638—gray lime.
5,671—lime.

March 31:
5,701—lime.
5,732—lime; increase water and gas at 5,702 feet flowing at rate of 10,500 bbls. per day.

April 1:
5,767—lime.
5,804—lime.

April 2:
5,834—lime.
5,845—lime.

April 3:
5,887—lime.
5,927—lime.

April 4:
5,937—lime.
5,980—lime.

April 5:
6,000—lime.
6,022—lime.

April 6:
6,052—lime.
6,060—lime.

April 7:
6,090—lime.
6,126—lime.

April 8:
6,159—lime.

April 11:
6,388—lime; notices increase in gas and water.
6,411—lime.

April 15:
6,757—lime; at 6,754 feet lime changed from white lime to light brown and gray and became much harder; this was the first noticeable change since starting in the 9⅝-inch casing. G.S.F.

April 17:
6,816—hard gray lime.
6,843—hard gray lime.

April 18:
6,853—hard gray lime.

April 28:
7,156—gray lime; the formation seems to be getting a little softer in places and the color in soft places same as before 6,754 feet.
7,156-7,377—gray lime.
May 2:
7,376—core showed light gray porous lime with asphalt, not very hard.
May 3-4:
7,377-7,463—gray lime.
May 5:
7,463-79—light gray lime; streaks of asphalt.
7,479-94—light gray lime (hard).
May 6:
7,494-7,505—gray lime; streaks of asphalt.
7,505-30—gray lime, hard.
May 7:
7,530-66—gray lime, hard.
May 8:
7,566-7,605—gray lime, hard.
May 9:
7,605-28—gray lime, hard.
May 10:
7,628-45—gray lime, hard.
7,645 61—gray lime, hard.
7,661-86—gray lime, soft.
May 11:
7,686-7,710—gray lime, soft.
7,710-37—gray lime, hard.
May 12:
7,737-59—gray lime, hard, with asphalt showing of green shale 7,749-59.
7,759-77—gray lime, hard.
May 13:
7,777-93—gray lime, hard, with asphalt.
7,793-7,829—brown lime, light.
May 14:
7,829-50—brown lime, light.
7,850-70—gray lime with streaks of asphalt.
7,870-91—brown lime, light.
May 15:
7,891-93—brown and gray lime with asphalt.
7,903—corrected measurement.
7,903-05—light brown lime, hard.
May 16:
7,905-18—gray lime hard, lot of asphalt.
7,918-40—gray lime.
7,940-54—light brown lime, hard.
May 17:
7,954-59—light gray lime, hard; shut down, waiting on drill stem.
June 6:
7,959-70—light gray lime, hard.
June 7:
7,970-8,032—light gray lime with asphalt st eaks.
June 8:
8,032-57—light brown lime.
8,057-83—light brown lime and asphalt streaks.
8,083-91—light brown lime, hard.
8,091-8,105—light gray lime.
June 9:
8,105-16—light gray lime, soft.
8,116-25—dark gray lime, hard.
8,125-44—light brown lime.
8,144-53—light brown lime, hard.
June 10:
8,153-75—hard brown lime with streaks of gray.
8,175-79—gray lime.
8,179-95—light brown lime with streaks of asphalt.
8,195-8,211—light gray lime, lots of asphalt.
June 11:
8,211-48—light brown lime.
8,248-65—light brown streaks of asphalt.
June 12:
8,265-83—gray lime, streaks of asphalt.
8,283—gray lime, hard.
8,295—light brown lime, asphalt streaks.
8,298—gray lime, hard; bit plugged five times with asphalt.
8,315—light gray lime with asphalt streaks.
8,323—gray lime.
June 13-14:
Changing cutters.
June 14:
8,325—hard gray lime.
8,338—light brown lime, hard.
June 15:
8,350—hard gray lime.
8,372—light brown lime, soft.
8,379—light gray lime, hard.
June 16:
8,416—light brown lime, hard.
June 17:
8,459—light brown lime, hard.
June 18:
8,506—light brown lime, hard.
June 19:
8,510—light brown lime, hard.
8,531—hard gray lime with asphalt streaks.
8,554—gray lime.
June 20:
8,607—gray lime.
June 21:
8,642—gray lime.
June 22:
8,649—gray lime.
June 23:
8,690—light brown lime, soft.
8,721—gray lime, soft with streaks of brown.
June 24:
8,754—gray lime.
June 25:
8,785—gray lime.
8,790—light brown lime.
8,804—gray lime.
June 26:
8,858—gray lime.
June 27:
8,883—gray lime with asphalt streaks.
8,904—gray lime.
June 28:
8,946—gray lime.
June 29:
8,993—gray lime.
June 30:
9,029—gray lime.
July 1:
9,053—gray lime; shut down.
July 9:
9,074—gray lime.
July 10:
9,096—gray lime, soft.
9,117—gray lime.
July 11:
9,127—gray lime, hard.
9,140—porous gray lime full of asphalt; closed in well pressure of 240 pounds.
9,166—porous gray lime with asphalt.
July 12:
9,216—gray lime.
July 13:
9,217—gray lime.
9,223—hard dark gray lime.
9,256—gray lime.
July 14:
9,297—gray lime.
July 15:
9,342—gray lime.
July 16:
9,405—gray lime, soft.
July 17:
9,450—gray lime.
July 19:
9,478—gray lime.
July 20:
9,512—gray lime, soft.
9,539—gray lime.
July 21:
9,606—gray lime.
July 22:
9,640—gray lime with asphalt.
9,677—gray lime, soft.
July 23:
9,729—gray lime.
July 24:
9,793—gray lime.
July 25:
9,833—gray lime (pulled out).
August 2:
9,841—gray lime.
August 3:
9,892—gray lime.
August 4:
9,924—gray lime.
August 5:
9,960—gray lime.
August 6:
10,001—gray lime.
August 7:
10,044—gray lime.
August 8:
10,056—gray lime.
August 20:
10,087—gray lime.
August 21:
10,134—gray lime.
August 22:
10,191—gray lime.
August 23:
10,234—gray lime.
August 24:
10,287—gray lime.
August 25:
10,349—gray lime.
August 26:
10,406—gray lime.
August 27:
10,464—gray lime.
August 28:
10,488—gray lime, temperature of water 160° F.; pipe dragging considerably account of asphalt in hole.
10,520—gray lime.
August 29:
10,572—gray lime; 2 miles deep 7:35 p. m.
August 30:
10,585—gray lime; coming out of hole.

OIL MEN USE THOUSANDS OF VARIOUS COMMODITIES

(Continued from Page 16)

and acetylene represent large sums. Electric welding is extensively used and supplies needed for both types of welding form a large part of the oil company buyer's purchases.

For every mile of pipe line whether for oil or gas there is built at least an equal amount of telephone or telegraph system. This has created a very large market for conduits and wire and one of the major companies in the Mid-Continent area purchased about $12,000 worth of conduit alone in 1930. Along the new gas line from Fitch, Tex., to Chicago, Ill., there is a very complete telephone system. The gas line is 923 miles long but the telephone line is 1,287 miles in length and about 5,000 miles of wire used as it takes in many towns and offices located away from the right of way of the pipe line.

Straps for Oil Drums

A business of very considerable proportions has been built up by one manufacturer who has a patented strap made of steel that is used as a binder for a group of oil drums when shipped in box cars. It was a rather difficult task to so block oil drums that they would not roll around in cars when en route until this steel strap was devised and it has been so satisfactory that it has come into quite general use for this purpose.

In every department of the petroleum industry many rubber stamps are used for all kinds of purposes and the total volume of business in this line built up by manufacturers of this equipment is of considerable size.

Likewise the oil companies are believers in advertising their products with attractive stamped enamel and embossed signs. Everyone is familiar with the trade-mark of the popular brands of oil and gasoline and has seen their merits set forth in attractive signs both at the filling stations and along the highways.

The petroleum industry is also a large user of tin cans. The famous 5-gallon gasoline can has found its way around the world and in many foreign countries has a definite trade value and is much prized by the fortunate natives who have been able to acquire one or more of them. Cans are also used for packing greases and some lubricants.

Seals for oil drums are used by all refiners and form an important item in the purchasing department lists. Oil drums and containers also are purchased in large numbers and are now made of metal as the old type wooden barrels have long since been discarded.

Steel Walks and Pipe Bends

To permit operatives to get from one place to another around refineries it is usual to provide steel walks and runways and they are surfaced with pressed steel trays or steps. Similar runways and stairways are used at large and small steel storage tanks and these several uses have built up a business of considerable importance in this type of equipment.

In all refineries there are many places where pipe bent to certain radius is necessary and there are a number of manufacturers now serving this trade who make a specialty of fabricated pipe for not only refineries but for pump stations. One large company placed orders in excess of $125,000 for this class of equipment in 1930 and as almost all of these pipe bends are subject to high heat, and pressure and corrosion is excessive, a constant replacement is necessary.

The usual type valves and gates are used in large quantities in every department of the petroleum industry and manufacturers of this kind of equipment have built up very lucrative accounts with the oil companies. Many valves used are for extremely high pressures and for high heat and have to be made from special metals and embody very accurate workmanship and design.

Another item of considerable importance is rivets for various uses around every department of the industry but especially at the refineries.

Packing, red lead, litharge and paint are also used in large quantities in the petroleum industry and during the past few years aluminum paint has become very popular for storage tanks as well as for other equipment and now forms an important outlet for aluminum dust used in making this kind of protective coating.

Testing Pipe Lines

With the great expansion in pipe line building during the past five years the recognized testing laboratories and engineering companies have been able to build up a very remunerative business in testing pipe and pipe lines in place before they were put into use.

These pipe line tests are planned carefully and the engineering companies and laboratories engaged in making them have become specialists in this class of work and are earning relatively large consulting fees. The 923-mile gas line from Panhandle of Texas to Chicago was all tested in place in this manner after being laid.

With the use of a considerable amount of machinery in refineries, along pipe lines and in the production department, a number of the oil companies have installed very complete machine shops at central points and have equipped them with modern machine tools and apparatus.

Landscape Gardening

With the expenditure of very considerable sums of money in filling stations, highway hotels, modern pumping stations, refineries, pipe line stations and field offices there has been a business of large proportions built up by dealers in shrubs, flower seeds and bulbs for the grounds around these buildings.

While most of the plots are being gardened by the employes who take great pride in the artistic arrangement of the plants and flowers, there are some instances where experienced landscape gardeners have been called into consultation for special work as well as to outline designs for stations that are to be built to standardized specifications.

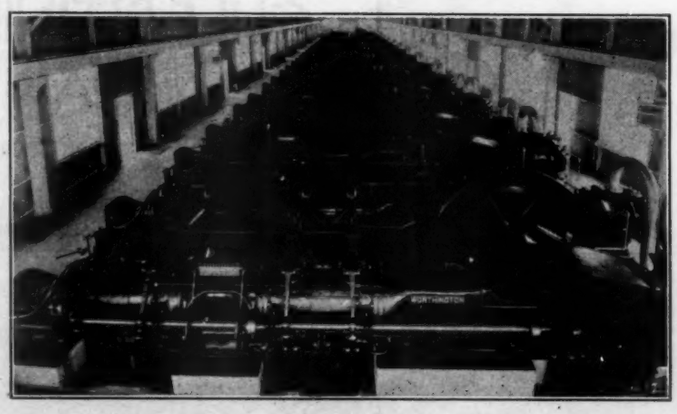
Grass seeds, lawn mowers, rakes, hoes, spades, garden hose and other gardening tools are also used to a considerable extent and on some of the larger properties powered lawn mowing machines have been found necessary in order to keep the grounds in first class condition.

For workers around refineries along pipe lines and at the wash racks in filling stations there is use for rubber boots and the purchasing departments buy a great many pairs every year, as well as a considerable quantity of wooden soled shoes for workers in places where there is considerable heat and acid.

Around every office and plant there is always to be found very complete first aid outfit and at most of the larger plants, whether refining, producing or transporting there are first aid rooms fully equipped with everything necessary in case of accident to employes.

While the above covers some of the rather unusual things required for the petroleum industry it by no means completes the list and in an industry of this size practically every article manufactured finds some place. Buyers look for quality first and in dealing with them salesmen will find that they have a fine sense of discrimination and fair play and it will pay almost any manufacturer of a standard commodity to investigate the possibilities for the use of his particular class of commodity in the petroleum industry.

INTERIOR OF GRAYCO STATION IN THE BOWERS POOL



Here are shown sixteen 750-horsepower compressing engines in the Grayco booster station of the Phillips Gas Co. in the Bowers Pool, Gray County, Texas.

GULF

Modern

Methods

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Gulf Products

the largest Atmospheric-Vacuum Still ever built.

Paraffine and Coastal Crudes

Gasoline · Lubricating Oils

Naphtha · Gas · Oils

Wax · Petroleum Coke

Cylinder · Engine · Cordage

GULF REFINING COMPANY

General Sales Offices: PITTSBURGH, PA.

STANAVO PLANE USED TO TEST OIL PRODUCTS

(Continued from Page 95)

Brazil; Canada, Imperial Oil Co., Ltd.; Colombia, Tropical Oil Co.; Cuba, Standard Oil Co. of Cuba; Czecho Slovakia, Oil Trading Co.; Denmark, Det Danske Petroleum Akr.; England, Anglo-American Oil Co., Ltd.; Finland, Ark. Nobel-Standard i Finland; France, L'Economique; Germany, Deutsch Amerikanische Petroleum Gesellschaft; Holland, American Petroleum Co.; Hungary, Oil Trading Co.; Italy, Societa Italo-Americana del Petrolio; Malta, St. Paul Petroleum Tanks, Ltd.; Norway, Vestlandske Petroleum Co. and Ostlandske Petroleum Co.; Peru and Bolivia, International Petroleum Co.; Poland and Baltic Provinces, Standard Nobel in Poland; Rumania, Romano Americana and Agentia Americana; Sweden, Sydsvenska Petroleum Aktiebolaget, Vestkustens Petroleum Akr., Skanska Petroleum Akr., and Krooks Petroleum & Olje Akr., Switzerland, Standard Mineraloelprodukte A/G; Tunisia, Societe Tunisienne des Petroles; West Indies (except Cuba), West India Oil Co.; Latin America (except Brazil, Colombia, Peru, and Bolivia), West India Oil Co.; Mexico, California Standard Oil Co. de Mexico and Huasteca Petroleum Co.

Among the major aviation companies using the products are the following: Aeropostale, Air Ferries, Air Union, Alaska-Washington Airways, American Airways-Southern Division; Boeing Air Transport; Cirrus Aero Engines, Ltd., Chilean National Air Lines; Colonial Airways; Colonial Western Airways; Compagnia Mexicana de Aviation; Compagnie Aerienne Francaise; Consolidated Aircraft; Curtis Wright Flying Service; Curtiss Weight Corp.; DeHavilland Aircraft Co.; Deutsche Luft Hansa; Dixie Airways; Douglas Aircraft Co.; Eastern Air Transport; Fairchild Aviation Corp.; Glenn L. Martin Aircraft Co.; Lambert Field, St. Louis; Lloyd Aero Boliviano; Mid-South Airways; National Air Transport; Navigazione Aerea Italiana; Pacific Air Transport; Pan American Airways; Pan American Grace Airways; Peruvian Naval Airline; Pittsburgh Airways; Pratt & Whitney Aircraft Co.; Seattle Victoria Air Mail, Inc.; Siemans-Halske; Soc. Aerea Mediterranea; Soc. Aeroncentro & Turismo; Soc. Aeroespresso Italiana; Soc. Aviolinne Italiane; Soc. Inc. Turismo Aereo Roma; Soc. Transadriatica; Southern Air Fast Express; Swedish Air Force; Texas Air Transport; Transcontinental & Western Air, Inc., Tulsa Municipal Airport; Universal Aviation Corp.; U. S. Army; Varney Air Lines; Von Hoffman Aircraft Co.; Wedell-Williams Air Service; West Coast Air Transport; Wichita Municipal Airport, and Wright Aero Corp.

Specification Requirements

The question of necessary qualities for aviation gasoline is one which has come in for considerable discussion among both oil companies and airplane engine manufacturers in the past few years. A good aviation engine fuel for use in modern high-compression engines, according to Stanavo engineers, should possess the following characteristics:

1. Freedom from water and other visible impurities.
2. Freedom from corrosive constituents.
3. Freedom from appreciable quantities of gum and gum-forming constituents.
4. Correct volatility (or range of boiling points).
5. Good antiknock properties.

Aviation engine oils, Stanavo engineers say, should possess the following characteristics:

1. Freedom from visible impurities.
2. Freedom from corrosive constituents.
3. Correct viscosity at operating temperatures.
4. Minimum change of viscosity with temperature.
5. Low content of constituents which form sludge.
6. Minimum tendency to deposit carbon.
7. Low content of organic acids.

A good rocker arm grease, according to the Stanavo specifications, should possess the following characteristics:

1. It should be free from visible impurities, undesirable fillers, and corrosive constituents.
2. It should contain a minimum of moisture.
3. It should provide adequate lubrication over a wide range of temperatures, feeding readily at low or high temperatures, and regaining original consistency after being subjected to abnormal temperatures.
4. It should resist oxidation in storage or service.
5. It should be stable in storage under all conditions.

Co-operative Research

Much of the research work of Stanavo Specifications Board has been carried out with the co-operation of various government agencies such as the U. S. Bureau of Standards, the Army and Navy research divisions, and with leading airplane engine manufacturers. In addition, a number of planes owned and operated by the three member companies forming Stanavo Specifications Board have been used in experimental work, particularly the New Jersey company's Lockheed Vega, which has become known as "Stanavo's Flying Laboratory."

Rigid regulations for handling aviation fuels and lubricants have been laid down by Stanavo for the guidance of its distributors. "Safety considerations," says the board, "make it imperative to guard against contamination in handling fuels and lubricants for aviation purposes. The presence of water, dirt, or other foreign substances in the fuel and oil systems of the airplane is obviously undesirable and has often resulted in serious engine failure.

"In refueling the airplane, careless methods may introduce a grave fire hazard as well as impair the quality of the gasoline. Static electricity may be generated in the process of fueling the tanks by the passage of gasoline through the filler hose, and a spark may result if the filling equipment is not properly bonded. To prevent this, before transferring the gasoline a metallic ground should always be established between the airplane tank and the tank from which the fuel is being supplied.

"Special equipment for aviation fueling purposes has been developed and its use is recommended."

The operations and development work of Stanavo Specifications Board are guided by a directorate made up of two representatives of each of the three supporting companies, this representation consisting of one technical and one marketing expert. All changes in specifications, etc., require unanimous consent and with each company constantly working on specification problems through their own laboratory departments, and generally in co-operation with outside agencies, the board has thus far managed to more than keep abreast of changes in engine design and other changes in aviation power plants.

DEMAND PRORATION OF IMPORTED OIL

(Continued from Page 13)

asking for an absolute cessation of importations of crude oil, as well as refined oil, in order to ameliorate conditions and restore to the people of these states their former purchasing power now so sadly lacking on account of the demoralized price for crude oil upon which not only the oil industry, but all allied and kindred industries must depend.

We believe that American capital and labor at home should have first consideration and be protected so far as possible; that it would be little less than a national crime to permit a continuance of the present situation when conditions will be so greatly improved by curtailing importations of o.l and utilizing so far as possible our own supply for domestic needs.

For a considerable period of time those companies engaged in importing oil have indicated to the domestic producers that as soon as production in the United States had been curtailed in an orderly manner to meet or equal market demands, they, the importers, would likewise curtail importation to such a degree as to be of material assistance in bringing stabilization to the oil industry in this country. For more than two years domestic producers have by voluntary action and with the assistance of the regulatory bodies or commissions in California, Oklahoma, Kansas and Texas, held production to less than demand, necessitating withdrawal from stock of more than 22,000,000 bbls. in 1930 and more than 20,000,000 bbls. in the first six months of 1931. There has been no corresponding reduction in imports.

Statement on Imports

At the Oklahoma City conference representatives of all the large oil-producing states adopted a still more stringent program of curtailment, with production allowables admittedly 200,000 bbls. daily less than the market demand, so as to require further withdrawals from excessive stocks; and a few days later the regulatory commissions of Texas, Oklahoma and Kansas, by written memorandum, approved this program so far as it applied to the allowable production of those states. But this program will be unavailing unless the importing companies likewise do their part by materially reducing imports.

We have secured statements of imports for the years 1929, 1930 and the first six months of 1931 of three of the importing companies, to wit, the Standard Oil of New Jersey, Shell Union and Asiatic and the Venezuela Gulf Oil Co.—the statements of the two latter-named companies covering the first eight months of 1931.

The Standard of New Jersey from its statement, has imported mostly crude oil, no gasoline and only a small amount of fuel oil. The total importations for the year 1930 were 22,025,667 bbls., and for the first six months of 1931, 10,859,124 bbls., or at the annual rate for 1931, of 21,718,248 bbls. If this company continues to import at the same rate for the last half of the year as for the first half, the total reduction in importations in 1931 over 1930 would be only the nominal amount of 307,419 bbls. It was our understanding that commencing in April an effort would be made by all the importing companies to reduce imports in 1931 as compared with 1930 by at least 25 per cent.

The statement of imports by Shell Union Oil Corp. and Asiatic Petroleum Corp., shows crude oil imports for the entire year 1930 of only 185,000 bbls., and for the first eight months of 1931, 185,544 bbls., or at the annual rate of 278,316 bbls., which is an increase of a little over 50 per cent. However, the amount is comparatively small. Their gasoline imports for 1930 were 8,102,043 bbls. and for the first eight months of 1931, 3,458,350 bbls., or at the annual rate for 1931 of 5,187,525 bbls., which would be a decrease in imports of gasoline for 1931 of 35.9 per cent. Their statement also shows a decrease of 18.3 per cent in imports of gas and fuel oil in 1931 as compared with 1930. Should these companies continue at the same rate of importation for the remainder of the year 1931, they will have substantially complied with the understanding regarding importations for 1931, which understanding was had, so we are informed, about the last of March of this year. However, we feel it necessary in the interest of our domestic labor situation that imports of refined products should be stopped altogether.

The statement of the Venezuela Gulf Oil Co. shows a daily average import of crude oil for the year 1930 of 65,605 bbls., or a total for the year of 23,955,754 bbls., while the total imports of said company for the first eight months of 1931 were 11,317,139 bbls., or at the annual rate of 16,975,708 bbls., which would reflect a curtailment for 1931 as compared with 1930 of 29.5 per cent. But the statement reflects that the cur-

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 93)

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices, effective June 20, are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above 66 cents.

Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Domingues	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote, Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

BAROID

Extra-Heavy Colloidal Drilling Mud

BAROID is a uniform, high-grade specially prepared pulverized weight material for increasing the weight of Drilling Mud to overcome high gas and water pressures. It is packed in 100-lb. sacks and carried in stock in all oil fields. Strict laboratory control assures highest quality in manufacturing and experienced field men provide exceptional service for users.

With a specific gravity of 4.2, BAROID enables the preparation of pumpable muds weighing 140 to 150 lbs. per cubic foot. Drilling Muds made up from BAROID will not settle out if circulation is suspended and eliminate danger of stuck drill pipe and fishing jobs. Write for literature. BAROID is

Hot Salt Water Flow which was controlled by BAROID MUD weighing 105 lbs. per cubic foot.

Manufactured By

NATIONAL PIGMENTS & CHEMICAL CO.

Sold in New Mexico, Texas, Louisiana, Mississippi and Alabama by

PEDEN COMPANY, HOUSTON, TEXAS

Sold in the remainder of the U. S. by

BAROID SALES CO., LOS ANGELES, CALIF.

AQUAGEL

Trouble-Proof Colloidal Drilling Mud

AQUAGEL is a uniform, specially treated high-grade clay packed in 100-lb. sacks and carried in stock in all oil fields. Mixed with water in the proportion of 3% by weight, one ton of AQUAGEL makes 180 bbls. of Drilling Mud. AQUAGEL provides the lowest-cost Drilling Mud and assures an adequate supply of gel-forming colloids which prevents caving, stuck drill pipe and casing, loss of circulation, mudding off of low-pressure sands and gas-cutting. Lubricates drill pipe and walls of the hole.

LEMCO MUD SCREEN

A trouble-proof, mechanically vibrated screen for removing sand and shale from Drilling Mud. Saves its cost many times over by reducing abrasion of pump parts, by reducing quantity of clay or weight material purchased and by elimination of construction costs for mud ditch or slush pit. Literature on request.

MARTIN-DECKER AUTOMATIC MUD SCALE

A new and improved trouble-proof device—easily installed—for continuously indicating and recording on a chart the true weight of your mud. An important safeguard against danger from blowouts. Literature by request.

Sold By

BAROID SALES COMPANY

837 Jackson St. Los Angeles, California.

tailment for 1931 will probably be greater than the percentage above indicated, because the imports for August, 1931, were only 33,921 bbls. daily. The Gulf company has imported nothing but crude oil. From the above it appears that they have more than lived up to the understanding of last spring.

Would Hold Reserves

Our recommendations are made to you after a thorough study of the past and present world production figures. We believe the importing companies can, if they will, co-operate in curtailing importations without endangering or seriously injuring their investments. It seems to us that they can as well hold their reserves in South America as in the United States, and by so doing be of great assistance to the oil industry of this country.

We can only urge that without your good offices curtailment of foreign importations is impossible. We assure you in advance of the appreciation of the 22,000,000 persons living in the oil states who are chiefly dependent for their prosperity upon this industry and the industries allied therewith.

We believe it only fair to the importing companies to add that a majority of them have displayed a spirit of co-operation and a sympathy for the oil-producing states. They have indicated a desire to be of further assistance. Nor do we, with your help, anticipate serious resistance to this curtailment program for imports from those companies which appear at present lacking in the American viewpoint.

SOME IMPROVEMENT NOTED IN GASOLINE

(Continued from Page 12)

dividual companies show that the third grade has cut into the gallonage which formerly went to the stations whose operations were confined to the sale of gasoline selling 2 or more cents under the regular grades of their large and small competitors. This third grade, however, usually is not attractive from the standpoint of station profits and the larger distributors are just as much concerned as they ever were in increasing the gallonage of their regular and premium grades. It is the efforts being made in the sale of these products by the major companies and the steady improvement in the quality of products which is reflected in manufacturing costs, which is responsible for the competitive situation previously mentioned. The more optimistic believe that this development will be worked out along sane lines in the near future and conditions established in retail markets which will permit the establishment of prices in line with production costs plus a reasonable profit.

Gasoline and Naphtha

Last week small shipments of U. S. Motor gasoline were made in Oklahoma at 2⅝ to 2¾ cents. Although material was available the first of the week in East Texas, basis Group 3 at the same price range, the going market to the trade in Oklahoma was 2⅞ to 3⅛ cents. The improvement was due largely to inter-refinery buying which has taken some of the lowest priced material off the market. It is believed that the Oklahoma market can continue to show improvement just as soon as the low priced material is absorbed in East Texas and one or two plants in North Louisiana.

Buyers are authority for the statement that despite the weakness of the gasoline market over the past month there are no large quantities of gasoline available at Oklahoma, Kansas and North Texas plants. The larger refiners and most of the smaller operators continue to have a good movement of gasoline through their own stations and through regular jobber outlets. There is so little trading in higher gravities that many of the trade do not attempt to keep in touch with the current market. In general, the usual price differentials are being maintained with an occasional sale at prices which indicate that sellers have excess material on hand which they are willing to sell at low prices. Naphtha buyers are compelled to pay at least a U. S. Motor price for the 50-52 450 endpoint grade.

Natural Gasolines

Natural gasolines closed the month with firm prices. Most of the sellers were sold up for September delivery by the middle of the month and no difficulty was experienced in maintaining prices on the relatively small quantity of spot material selling from day to day over the last half. All grades in Oklahoma were quoted firm at 4 cents for immediate delivery the first of the week and one-fourth cent less in Texas.

The outlook for October was not so bright. Little October business has been placed and it is assumed that the quantities purchased will depend largely on the turn in the refinery gasoline market over the next few days. The situation from the manufacturers' angle will not be aided if the shut down now in effect in the Oklahoma City and Seminole Fields is lifted and 500,000 gallons of additional natural gasoline is made available for the market.

Fuels

All grades of fuels appear to be holding their own in Oklahoma. No improvement is noted in the volume of business except perhaps the low cold test grades of high gravity fuel oils and furnace oils. As cold weather approaches jobbers are ordering out material and with the first cold period it is expected that there will be a marked increase in shipments. However, most of this material is selling on contracts and open market trading is light.

A low cold test furnace oil with a low flash is quoted in Oklahoma at a low of 1¼ cents regardless of gravity with a general price range up to 1½ cents which covers the prime white grades. Two or three refiners manufacture special grades for which they get up to 1¾ cents from their regular customers.

The regular grades of fuel oils start at 22½ cents except for the extremely high cold test material which ranges down to 17½ cents. Forty-five cents is the highest sale reported for the high gravity grades.

The intrastate demand is absorbing the high cold test gas oil cracking stock and this product is quoted at a low of 1⅛ cents with sales made as high as 1⅜ cents on short hauls.

Lubricants

There is a better feeling among manufacturers of bright stocks and neutral oils. The recent price advances are being maintained and in the case of bright stocks, the demand continues strong. Steam refined stocks are not active and some price shading is reported.

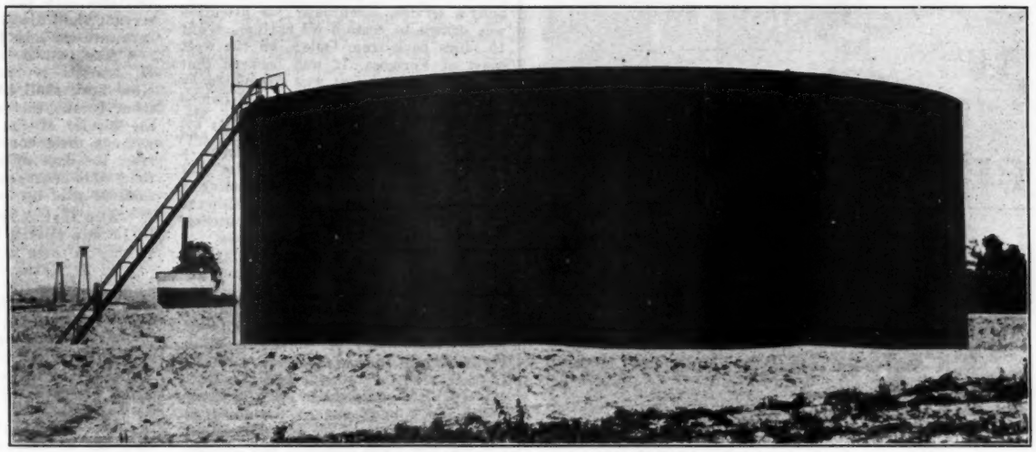
After a dull period more inquiries for wax are again reported. Prices are unchanged.

STRONGER MARKETS FOR PALE AND RED NEUTRALS

HOUSTON, Tex., Sept. 28.—A scarcity of the heavier viscosity pale and red oils has developed on the Gulf Coast and at the opening of the week although no actual advances had been made in prices over previous prevailing quotations, the market was in a stronger position. Gasolines also have shown some improvement to check the weaker tone which was felt during the two preceding weeks. Fuel oils, however, reflected further softness with quotations dropping to new lows. Bulk fuel was offered freely Monday at prices ranging from 40 to 45 cents. Gas oil continued steady with no indication of any immediate change.

The gradual withdrawal of heavy pale and red oils, coupled with the fact that comparatively little has been produced lately, has resulted in the tighter situation in these projects. Most coastal refiners have found themselves sold up, so much so that at least two have been in the market trying to buy up what additional supplies could be obtained. The market in this district has been held down largely because of the fact that one outside source of supply still has material on hand and is continuing to quote on the present price scale in competitive territory.

PITTSBURGH DES MOINES



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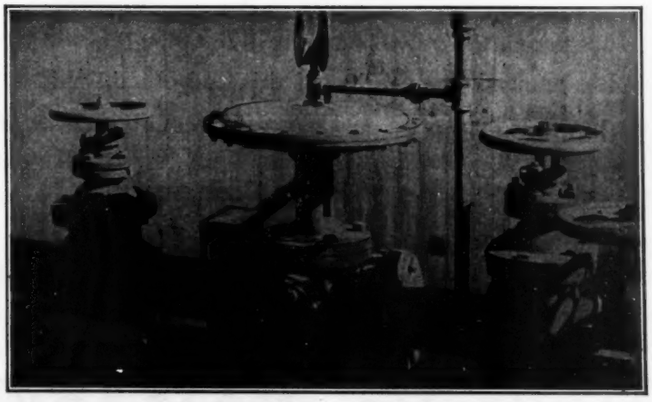

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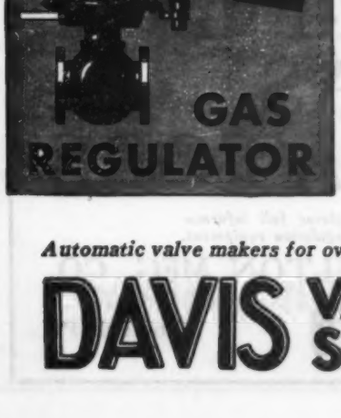

Automatic valve makers for over fifty years

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TITUSVILLE MEN DRILLED IN CHINA IN YEAR 1877

(Continued from Page 18)

organization, Tong King Sing became well informed as to the resources and possibilities of regions within the company's service. Eventually his attention was drawn to certain oil springs, about 15 miles back from Oulan, on the west coast of Formosa. It was believed that his particular interest was stimulated by the activities of an Englishman named Todd, a tea merchant at Tamsui. Mr. Todd had visited the oil springs and taken preliminary steps to organize a company when rumors reached him that the Chinese authorities were sending a special force of soldiers to deal with the situation, whereupon Mr. Todd became so alarmed that he left the island.

Interested in Oil

Concluding that as president of the steamship company he would develop the oil possibilities in the interest of the government, the company and himself, Tong King Sing wrote to Young Wing at Hartford, connected there with the Chinese school as stated, and also with the Chinese embassy in this country, instructing him to procure the necessary men and oil well materials. Young Wing did not feel quite equal to the commission, but entrusted its execution to an American friend, Dr. E. W. Kellogg, of Hartford.

Visiting Titusville, Doctor Kellogg authorized the purchase of $30,000 worth of oil well supplies, all parts in duplicate, and arranged for the men to go with them. It was at first proposed to employ but one expert driller for the work and A. P. Karns was selected for that purpose; but Mr. Karns refused to go unless provided with an assistant. Robert D. Locke, a young man of healthy physique and habits, and a natural mechanic, was chosen for the position. A preliminary contract was drawn up at Titusville and the final contract was signed at Tia-wan-foo, in Formosa. The signature of the Taotai, or final Chinese authority acting in the matter, was witnessed by Yip-a-Foo, captain of Her Imperial Majesty's gunboat, Tsing Yune, and for Messrs. Karns and Locke by W. Holland, assistant in local charge of the United States vice consulate.

First Foreign Contract

Since then many contracts have been entered into under which crews of American drillers, furnished by concerns supplying the machinery, have been sent to different parts of the world to further petroleum developments, but this takes precedence as the first contract which linked the Far East and the Far West in such a purpose. The document, here appearing in print for the first time, was executed both in Chinese and English and reads as follows:

"An agreement made between Chang, sub-Prefect and Deputy for Taiwan Board of Trade, Formosa, in the Empire of China, party of the first part, and A. P. Karns, an American citizen, U.S.A., a driller of oil wells, and R. D. Locke, an American citizen, U.S.A., also a driller of oil wells, under the superintendence of A. P. Karns, on the Island of Formosa, parties of the second part.

"This agreement made in consideration of oil wells in the vicinity of Tamsui, in Formosa, through Young Taotai of the Chinese Embassy to the United States, and R. M. Brown of Shanghai, China, to engage A. P. Karns and Robert D. Locke as drillers of oil wells in Formosa. Agreement was being made at Titusville, Pa., U.S.A., between R. M. Brown and A. P. Karns and Robert D. Locke, parties of the second part, to replace by a similar agreement of the same import to be made in China between said parties of the first and second parts as follows:

Agreement Made

"'An agreement by and between R. M. Brown of Shanghai, China, and A. P. Karns and Robert D. Locke, both of Titusville, U.S.A.

"'It is agreed that A. P. Karns shall receive a salary of three thousand dollars ($3,000.00) gold, per year, and Robert D. Locke of one thousand two hundred dollars ($1,200.00) as drillers of oil wells on the Island of Formosa.

"'Also that A. P. Karns' and Robert D. Locke's traveling expenses to the empire of China shall be paid. On arrival in Formosa an allowance of Fifty Dollars ($50.00) each per month for board and servant shall also be made. Lodging and furniture shall be provided.

"'Also that A. P. Karns' and Robert D. Locke's return passage tickets to New York shall be paid, unless any of them breaks this agreement by leaving the service of the Petroleum Company without their consent, within one year from the date of leaving Titusville, the time this engagement began. Salaries shall be paid up to such date.

"'Also that A. P. Karns' and Robert D. Locke's salaries shall be paid as often as once in three months.

"'A. P. Karns and Robert D. Locke agree to do all in their power to faithfully promote the interests of the Petroleum Company and superintend oil wells in Formosa. All matters connected therewith shall be consulted with the Chinese authorities or its deputies. They shall instruct or teach the workmen and laborers as far as their experience and abilities go without reserve. In case disobedience or misconduct shall be found on the part of laborers, they are to have reference to the Deputies to punish and inflict the offenders and on no account to take the matter upon themselves to punish such offenses.

"'It is mutually understood and agreed that A. P. Karns and Robert D. Locke shall remain in the service for one year, leaving Titusville, U.S.A., on the ..... salaries commencing from September 4, 1877, corresponding to Chinese Kuang Hsii, 3d year, 7th moon, 27th day. If the Petroleum Company shall discharge one or both of them, he or they shall receive the full salaries as agreed upon for one year.

"'It is agreed that in case of illness, A. P. Karns and Robert D. Locke shall find themselves Doctor and medicine.

"'Also that the advance made by Tong Taotai to A. P. Karns and Robert D. Locke for salaries shall be deducted here.

"'Traveling expenses of A. P. Karns and Robert D. Locke to China having been paid by Tong Taotai, and after the expiration of one year their return passage tickets and traveling expenses to New York shall be provided for by Tong Taotai.

"'It is agreed that after the expiration of one year, if the Chinese authorities should consider expeident for A. P. Karns and Robert D. Locke to remain longer in the service in order to complete the whole work, salaries shall be paid monthly at the same rate of $250 and $100 respectively per month, but shall not be paid by the year.

"'It is further agreed that A. P. Karns and Robert D. Locke shall remain in the service as drillers of oil wells in the Island of Formosa until the machine shops, buildings and oil drilling work of the Petroleum Company be brought to entire completion, giving satisfaction to the Chinese authorities.

"'In witness whereof we have hereunto set our hands and seales at Tai-wan-foo this twenty-eighth day of November, 1877, corresponding to Kuang Hsii 3d year, 10th moon, 24th day.'"

Arrival in China

When Messrs. Karns and Locke took passage on the steamer "City of Pekin" at San Francisco, there was occasion to wonder if Americans could expect very friendly treatment in China. On the same ship on which they embarked were crowded 2,000 panic stricken Chinamen, fleeing from California because of the anti-Chinese agitation, which was the outcome of the famous "Sandlots" campaign of Dennis Kearney. There was no difficulty with the Chinamen on board the ship, though trouble seemed on the point of breaking when one of the Chinamen, who had died on the voyage, had to be buried at sea. As the body was raised to be slid overboard, the Chinese rushed from their quarters, in seemingly angry protest, and crowded the rails on

that side of the ship. As the body struck the water with a splash, they voiced whatever their feelings were in loud exclamation of the word "Wagh!" That was the end of the episode, and they returned to their quarters as quietly as if nothing had happened.

On their arrival at Shanghai, our drillers experienced the first of the delays which, in one form or another, were to attend them throughout their stay. They were held a month at Shanghai. No cause was assigned for the delay, but it was assumed to be due to the slow and devious manner in which Chinese administrative methods reached up from one authority to another to final disposition. At last a start was made for Formosa and the oil springs. By reference to a map of Formosa, it will be seen that a water voyage might have been made to Oulan, with the oil springs only 15 miles southeast of there, at the foot of the mountains. Instead of that they went inland from the port and city of Tia-wan-foo and traveled, by chair and on foot, about 125 miles. It was December 10 when they reached the oil springs, where they picked out a place to drill the well and build a house. Then they traveled back to Tia-wan-foo by the same slow process by which they had left it. It was early in January when they again took the inland trail for Oulan and the oil springs, this time not to return until after their contract had expired.

Guarded Continuously

While doing the preliminary work on roads and at the well, their headquarters were in a small village located about a mile from the well site. It was located in a bamboo thicket, impenetrable except for two entrances. These were guarded continuously, and as added protection when darkness fell, a sentinel, posted in the open in the center of the village, faithfully pounded a drum all night to keep away evil spirits.

So many soldiers, accompanied by their wives, were sent with the expedition that the village could not accommodate them all and the most of them were sent back. Their colonel was an easy-going warrior, fond of food, opium and sleep, but he could be rigid, too, in exacting obedience. For ordinary infractions of discipline, the penalty was to be "bambooed." The offending soldier was stretched face downward on the ground, with one soldier sitting on his head and holding it down, while another soldier discharged a like service at his feet. Then a large, well-seasoned piece of bamboo of the weight and shape desired was brought into play upon the leg muscles of the prostrate soldier, about midway up from the knee. Forty strokes or more, vigorously administered, were something to remember.

Lived in Joss Temple

The houses of the village were of adobe walls, with thatched roofs, the one exception being the small Joss Temple, which had tile roofing and was more substantially built. It had three rooms, the central or Joss room, and a wing room on each side, entrance to which was through the Joss room. Messrs. Karns and Locke were accorded the honor and hospitality of having these side rooms assigned to them, but the distinction was not without its drawbacks. When religious and holiday celebrations were going on in the Joss room, as they frequently were, and which consisted of loud incantations, the beating of drums, the shooting of firecrackers and the burning of Joss paper, the American guests in the side rooms often had occasion to think, if not to sing, "O, I Have Sighed to Rest Me!" No idols or images were used, papers variously inscribed being used instead, and since there was a space of a few inches vacant between the bottoms of the doors and the floor, the smoke of the burning paper and powder rolled up freely into the guest rooms. Now and then a wandering firecracker would find its way under the doors and add its exploding contribution to the din and reek.

The Joss room was used also as a school room. Some of the children would be on hand before daylight. At little tables they sat, two by two, facing each other, thus studying until noon. Then the wearied little fellows bowed their heads upon the tables and took a noonday nap, after which they ate their lunch. They studied aloud. Uttering what seemed to be one syllable in groups of three, and sounding like "La! la! la!" They shouted this as loud as they could, kept repeating it in descending tones to almost a whisper, then went on doing the same thing over and over again. The childish voices, pitched to their individual keys, rose into a clamor very trying to the patience of the Pennsylvanians in the adjoining rooms.

Shipment Lost

Awaiting the arrival of the oil tools, preliminary work was continued, including the construction of a giant wagon on which to haul the boilers and other heavy equipment. Then there was a development which threatened to end the enterprise—the shipment of machinery was lost! It was known to have come safely overseas and through the Suez Canal and then, in some unaccountable way, it had lost its identity and could not be found. It was about to be sold as junk when the use to which it was to be put was discovered and it was loaded on a Chinese gunboat and shipped to Oulan. The gunboat could not get over the bar and went back to Tamsui. There the machinery was loaded on Chinese junks and sent on another voyage to Oulan, where it was finally landed, with much difficulty, and taken as needed to the well site.

There was a stream, leading up from the village past the oil springs and into the mountains, but the rains were so frequent and heavy it could not be told from one day to the next whether it would be a creek or an overflowing river. High waters worked havoc with the bridges, and twice the drillers were marooned in such a way they had to swim out. At one high stage a part of their equipment was carried away, including the great "horseless wagon," which it had taken weeks to build, and whose motive power had been the combined strength of enough coolies and water buffaloes. Other adverse happenings had to be met, and it was not until June 14, that the following note of progress could be committed to the diary:

"Went up to the well. Got up steam and drilled over the shaft 14 feet. Drove the drive pipe down 5 feet."

Struck Oil

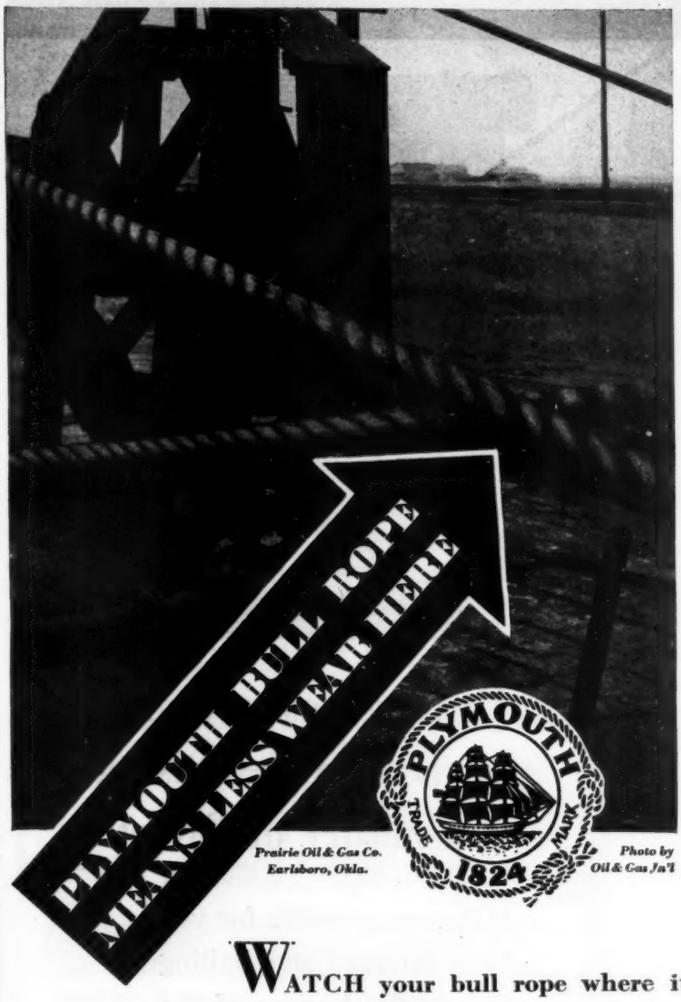
It was nearly two months later (August 3), before the diary got this information:

"Struck oil today, but more salt water than oil. The Chinese dipped all the oil they could get, about 20 gallons. They think they have a bonanza and are afraid they can not get vats enough to hold it."

From then on until after the drillers had completed their service and quit, it was a fight with the drill, drive pipe and casing against caving formations. The well had been sunk, as stated, to a depth of about 400 feet. Its best production of oil in one day was 6 bbls., with the prospect that it would do considerably better with the caving stopped. Their employers would have had Messrs. Karns and Locke continue indefinitely beyond their contract, but the drillers were ready to consider their adventure ended. This feeling was stimulated during the close of their stay, when Mr. Locke got a touch of the malaria or jungle fever, which had included a number of their men among the stricken and from which some of the soldiers and coolies died. They had no complaint to make of their treatment, and left with only good wishes for their employers and those whose work they had directed. The novelty of their experiences had worn off; their mails had been irregular and infrequent; there were periods as long as four months when they had not seen a white face except their own, and they were ready to head back for "the good old U.S.A."

Among Head Hunters

And what of the Indians, savages, Sheng Fan or Head Hunters, as they are variously called, into whose territory



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PLYMOUTH MANILA BULL ROPE is now protected against the wear and tear of friction—by a special Bronzo lubricant treatment. Bronzo tends to lubricate all fibers and strands, and reduces friction wear to a minimum.

Ask for PLYMOUTH BRONZO MANILA BULL ROPE at the Oil Well Supply Company branch store nearest you. There, also, may be had Plymouth Manila Drilling Lines, Crackers, Cat Lines and Spinning Lines.

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Drilling Cost is a matter of Distance—Distance is a matter of Direction

If it were possible for you to be lowered on a bailing line to the bottom of the drill hole, you couldn't tell so much about its direction as this instrument . . . . . It's called the

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Messrs. Karns and Locke had been sent to drill the well? They did not know until they reached Shanghai that they would be so located. There a reporter for the Chicago Tribune, who had come over on the boat with a companion to hunt big game in India, drew such a dark picture of the region to which they were going as almost to turn them back. Mr. Locke, who included in his journal a record of weather and temperature, could not then guess that within a few months he would be noting certain events in his diary in such brief, matter-of-fact entries, as these:

"January 17, 1878—Went up to the oil springs today. Coming back we saw two Chinese carrying the body of a Chinaman who had been beheaded." (With the hands and feet tied, they had strung the body on a bamboo pole, and were carrying it as a hunter might so much game.)

"March 12—At the oil springs today started building the walls of the house. The soldiers made us understand that the Indians had shot down another man and cut off his head."

"March 20—Up to the oil springs and the new house. The walls are up about 2 feet. There were two more Chinamen killed and beheaded yesterday. That makes seven within a month. Thermometer, 62. Rain this evening."

The gory record was later extended by entries of which the above are typical. Though sorry for the unfortunate victims, and naturally apprehensive at first as to their own safety, Messrs. Karns and Locke soon came to understand that the Head Hunters bore no grudge against them, nor, so far as they could learn, against other white men. Sometimes they called Messrs. Karns and Locke "ancestors" and "brothers," and their view appeared to be that sometime in the past the whites and their people had come from the same place and lineage,—tanned, it might be to different hues by life and travels in different climates, but of the same stock, yet of no kin to the yellower races. It was this feeling that prompted them to assist Mr. Todd, the English oil scout above mentioned, in his flight from the island, when he imagined the Chinese soldiers to be coming after him. Though they got no thrill of ancestral pride out of the suggested relationship of their respective races, Messrs. Karns and Locke, for obvious reasons, did not enter into any argument with the Head Hunters on the subject.

Cause of Killings

It was believed that the killings as above recorded, with others not recorded, were due to failure of the Head Hunters to receive on time, certain payments as the oil operations went forward. The well, if not actually in what was called their territory was so close to it that they exacted payments for noninterference with the enterprise. If the payments were allowed to become overdue, the Head Hunters would steal down upon some poor Chinaman, cultivating sweet potatoes, peanuts and what-not on his little patch of ground on the mountain side, kill him and cut off his head. If this did not bring payment, another Chinaman would be treated in the same way, and this would be kept up until payments were made, when the murderous reprisals would cease.

From his personal observations and study of the Head Hunters, it has not surprised Mr. Locke to read of the recent revivals of their savage and deadly activities. In his view, they but furnish more bloody evidence that, since they acquired the island as a war prize, the Japanese have been no more successful than their Chinese predecessors in subjugating these wild men, though the efforts to do so have cost Japan the lives of thousands of soldiers and police, and the expenditure of millions of dollars. Nor does he regard the prospect as favorable for much different results in the future. The Head Hunters, in territory they regard as peculiarly their own, feel the right to live their lives in their own ways, and will fight until exterminated, as other wild tribes have in other parts of the world, rather than to accept the domination and cultural standards of any race they do not consider superior to their own.

It was a coincidence that in Chinese territory, as in the United States, the site for the first well to be drilled for oil was an oil spring. Besides the pioneer American well (the Drake well at Titusville) Mr. Locke, when a boy, had lived for five years as a member of the Locke family in the house which has been occupied by "Uncle Billy" Smith, driller of the well. He thus had a personal association with two famous oil springs and oil wells, "the whole wide world apart." It was a further coincidence—a fact he did not learn until his arrival in San Francisco on the way home—that Rev. Robert Morrison, the early missionary referred to, was a cousin of his grandfather on his mother's side, after whose husband, Mr. Locke was named. By the first educated Chinamen who had occasion to write Mr. Locke's name, it was spelled "Lock - - e," and pronounced as two words, but when the ordinary Chinamen got through working on its translation, it had been reduced to the odd cognomen which starts and ends our story—"Gip Kik."

CORRECT AND INCORRECT DRILLING IN EAST TEXAS

(Continued from Page 30)

forming chemicals, the water should be filtered, or treated and filtered. Boilers have been burned or have blown up because of mud or heavy scale deposits caused by poor water. This is a serious hazard in a boom oil field. Proper treatment of the water before it enters the boiler will prevent the formation of scale and the deposition of mud.

Boilers should never be operated with safety valves that are in poor condition. At least one boiler blew up in this field due to a faulty relief valve which failed to "pop" at the set pressure, thereby permitting the steam pressure to exceed the safe working pressure of the boiler. Relief valves on all boilers, and especially high pressure boilers, should be inspected systematically and regularly and manually popped at regular intervals to determine that they will work at their set pressures.

Equipment

Only first-class drilling machinery, boilers and drill pipe should be used. All equipment and fitting wherever possible should be built to A.P.I. specifications. Used equipment and machinery should be thoroughly inspected and necessary repairs made before using. After equipment has been used for a considerable length of time it is admittedly hazardous as its actual strength is often highly questionable. The interchangeability of standard A.P.I. parts can save much money in drilling operations.

Drilling Methods

Two mud pumps should be used on each drilling well. The use of only one mud pump on a drilling well may be satisfactory in the majority of cases in East Texas drilling, but it is not good practice because quite often a pump goes down when its services are most required. For example, if the pump breaks down when drilling in heaving formations, the drill pipe may stick; also if the pump goes down when completing the well, the well may get out of control and blow out. Some operators use only one mud pump in order to reduce expenses, but many contractors and oil producing companies in East Texas use two mud pumps because this saves time and may prevent trouble. While two pumps are often used simultaneously, it is good practice, whenever one pump is shut down, to inspect in carefully and make any needed repairs in order that it may be available for standby purposes.

It is bad practice to run casing without a suitable float shoe or float collar. The use of a float shoe or float collar relieves the strain on the casing and on the hoisting equipment and may prevent damage to the equipment and to the casing.

Old style elevators should not be used in running second-hand casing. It is good

practice to use slip elevators and quick-action slip spiders. The slip in the spider is allowed to ride until all the weight is on the last collar in a strained position, thereby assuring that the joint will hold the weight of the string.

Drilling Mud

Drilling mud should weigh between 9½ and 10 pounds per gallon; do not use muddy water for circulating while drilling. While the use of a mud of too light weight may not prove disastrous, it can easily do so by allowing the hole to cave in: cavities may be left which cause the drill pipe to wobble off the vertical; these cavities may also take up most of the cement, thereby leaving the casing without sufficient protection against collapse, especially when old casing is run. The use of improper mud can easily cause crooked holes.

East Texas formations furnish good mud for walling up the hole and proper care is being shown in most cases. Mud weighing 9½ to 10 pounds per gallon will overcome the formation pressure of any well in East Texas and will practically insure a good hole and a straight hole.

The heaviest mud obtainable from East Texas formation should be used when drilling wells into the sand. It is poor practice to drill wells into the sand without using the heaviest mud obtainable from East Texas formations. Proper mud can be secured for drilling purposes if the drilling crews use ordinary care in saving surplus smooth mud.

Adequate slush pits and reserve pits should be provided and extreme care should be taken to prevent the escape of muddy water or drilling mud into the creeks. Inadequate reserve pits and careless crews may not only waste good mud which is necessary for drilling in and keeping the hole in shape, but may also cause stream pollution. Disposal of excess surplus and mud through the natural drainage channels should absolutely not be permitted and is expressly forbidden by law. Adequate slush pits and reserve pits are usually provided in East Texas, and extreme care is usually taken to prevent the escape of muddy water and drilling mud to the creeks.

Crooked Holes

Aequate precations should be taken to prevent crooked holes. In a field where the wells are 3,600 feet deep and the producing horizon is as well known as the Woodbine sand, it is almost inconceivable that so many operators would wilfully neglect to obtain straight holes. At least 50 per cent of the oil produced in the East Texas Field will be pumped in some manner, and crooked holes will increase the lifting cost enormously. The average over-all development time between a straight hole and a crooked hole will not exceed 48 hours in favor of the crooked hole.

The permissible deviation of well bores from the vertical should be limited to definite figures. Many operators in East Texas drill their own wells not to exceed 5 degrees from vertical and require their contractors to do the same thing. Some operators require their contractors to drill their holes with deflection from vertical of not more than 2½ degrees. There are many well-known methods and devices on the market by which the straightness of the hole can be determined.

The general use of fishtail bits at all depths without regard to formations is bad practice. Fishtail bits are satisfactory when used in certain formations. Some operators use them satisfactorily in East Texas at depths between 1,800 and 2,400 feet where the formations are especially sticky. In other formations a bit which more completely fills the hole with four or more cutting edges is more satisfactory than a fishtail bit.

Methods and Equipment

The use of the following methods and equipment is considered good practice in keeping the hole within prescribed limits on vertical deflection:

(a) Drilling rigs are equipped with weight indicators to guide the driller as to the weight carried on the bits. All good drillers after a little experience with weight indicators know the proper weight to carry on a particular type of bit in a particular formation to make the hole and at the same time keep it straight.

(b) Some operators using 6-inch drill pipe equip the string with long drill collars and with reamers at various distances above the bit.

(c) Some operators use a stand of 8-inch drill pipe on the bottom of the 6-inch string when an 11⅞-inch or larger hole is being drilled.

(d) Some operators using 4-inch drill pipe equip the string with a stand of 6-inch drill pipe and with long drill collars immediately above the bit or immediately above the bottom joint of 6-inch drill pipe. This equipment on the bottom of drill strings fills the hole practically out to gauge from the bottom up to about 100 feet off bottom and prevents the bit from wobbling.

Blowout preventors should always be used while drilling in wells. Blowout preventors have been used to a great extent in East Texas, and should always be used in drilling East Texas wells into the sand. The average bottom hole pressure in the field at present is approximately 1,550 pounds per square inch. This pressure will blow drilling fluid of improper weight out of the hole immediately after sufficient aeration of the column takes place. It is admitted that well mixed mud of 9½ to 10 pounds per gallon will hold down these pressures. However, the human element in drilling does not assure that these weights will exist at all times. Several wells in East Texas have already blown out with disastrous results.

Completing Wells

Christmas tree fittings should be installed before washing a well. One operator in East Texas has been credited with the statement that if clear water will not hold a well down, nothing will. If this operator actually practices this nonessential idea, he will probably find himself with a nice blowout and disastrous fire with probably loss of life to his discredit before he is through with East Texas.

Christmas tree assemblies should be thoroughly tested with a hydraulic pump. It is bad practice to install christmas trees without thoroughly testing the assembly with a hydraulic pump to the test pressure of the fittings used. Christmas tree fittings should be capable of withstanding a test pressure of at least 1,000 pounds per square inch.

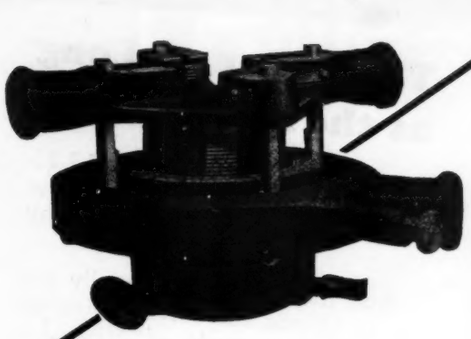
Small pits should be provided several hundred feet from the well to receive the mud and cut oil from the well while it cleans itself. It is bad practice to permit the well to clean itself in the slush pit and reserve pit. This is an extremely dangerous practice and one of the worst fires to date in East Texas is known to have resulted from this practice. The installation of special cleaning pits at a safe distance from the well assures all oil and gas being in a place where if it catches fire no damage can be done to well or property.

When all fittings are in place and the well brought in in this manner, there is little or no danger of the well catching fire. After the well is completed the oil in these cleaning pits is either burned or used as road oil as soon as possible to prevent it washing away during a rainstorm and getting into the creeks.

Wells should be completed only in the daylight hours. It is extremely dangerous to complete a well at night, as the gas produced in East Texas is very flammable and heavy, and at night when the air is damp and heavy the gas will stratify in the timber and low places where it can very easily be ignited. It is easily conceivable that an explosion of gas of this kind could cause great loss of life.

Wells should not be swabbed when the wind is blowing from the well towards the boilers or other source of fire. If the well is swabbed while the wind is blowing towards the boilers, torches or other fire hazards, it may carry spray from the well which could become ignited and cause a bad fire.

A swab chamber long enough for swab and sinker should be used when swabbing



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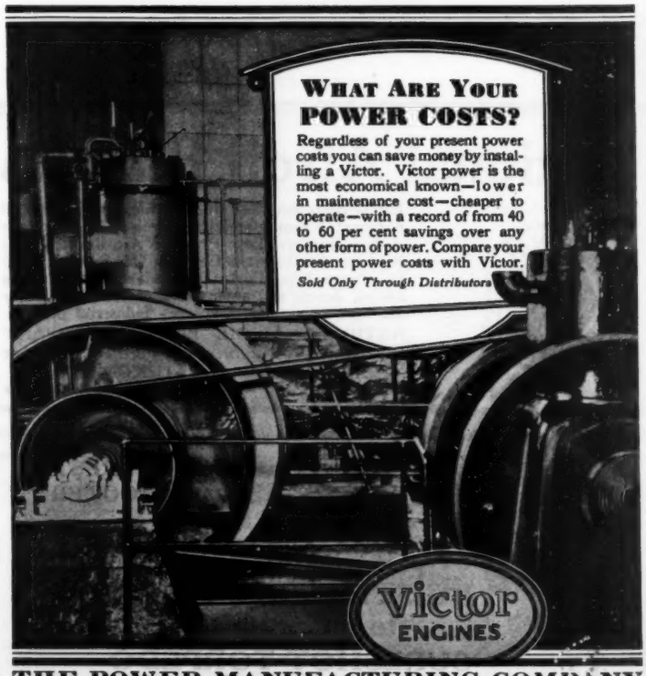
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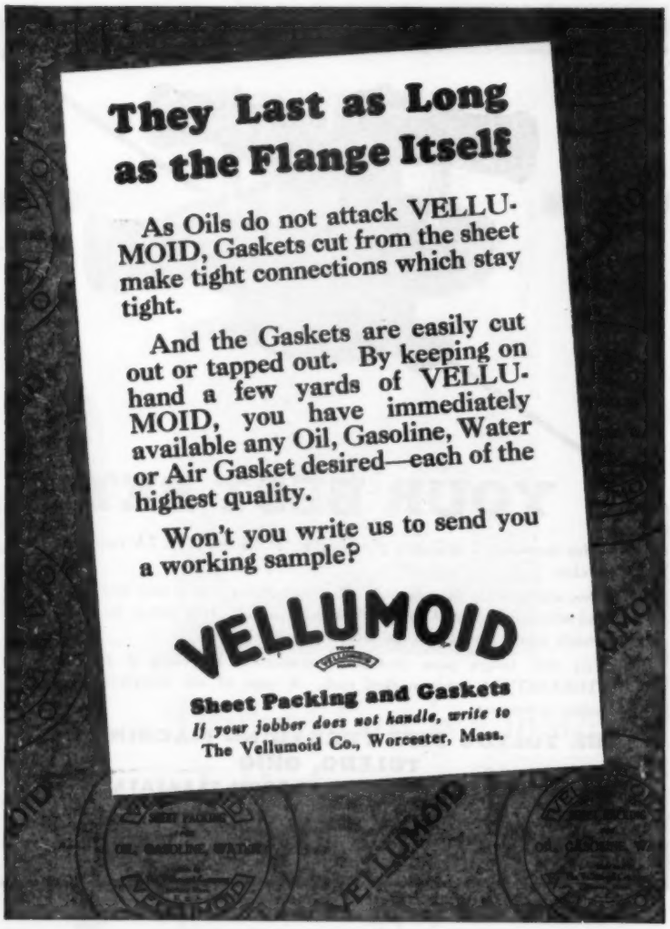
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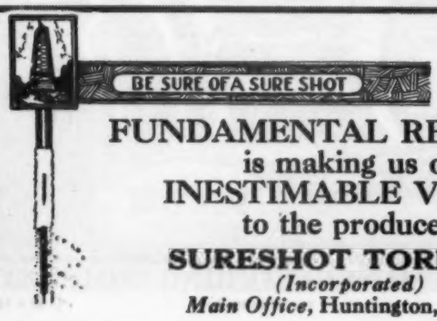

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oil from a well. When swabbing oil from a well in order to aerate the oil column sufficiently to start the flow, a swab chamber should be used; this will prevent loss of oil and gas and will eliminate a fire hazard.

Smoking and automobile traffic should not be permitted in the vicinity of a well while it is being brought in. Despite precautions, gas may escape from a well during completion; smoking or automobiles may cause a fire.

Do not permit a well to spray oil over a large area during the cleaning operation. Often this oil will not be of sufficient amount to collect in pools, but the first rain will wash much of it off the grass and bushes and out of the soil and into the creeks, causing pollution.

Allowing a well in the cleaning operation to flow open a sufficient length of time as to cause high concentration of gas in a low area or in timber, even though the oil is going into a pit far removed from the well or tanks, is extremely dangerous practice for the reason that workmen or dwellers in a boom field, and especially in a wooded area such as East Texas, may be out of sight of the well operations and still be in the danger zone of a gas explosion.

Conclusion

The foregoing recital of bad and good drilling practices may not cover all of the drilling methods used in East Texas and the committee invites comments pointing out additional practices or amplifying those already discussed.

The practices outlined in this paper are familiar to every intelligent and experienced oil man. All of these practices are easy to accept or reject. Almost every practical oil man is willing to accept good practices and use them in his business, but many of them are not willing to go to much trouble to do so. The adoption of any accepted set of good practice rules in any business calls for some effort. Carelessness and chance-taking is the great evil confronting every industry. The cost of these good practices over the bad is very slight, and invariably cheaper in the long run.

From a cost standpoint these good practices provide the cheapest insurance possible.

CENTRAL WEST FIELDS

(Continued from Page 48)

at 1,450 feet on the J. G. Miller farm, Section 3, Chester Township, same county, and undecided whether to go deeper. Doctor Bing and others set casing at their second test on the H. E. Weaver farm, Section 35, Salisbury Township, same county, at a depth of 877 feet, and Joe Rubin and others are drilling on the Phillip Heilman farm, Section 36, same township.

INDIANA

Two completions were reported from the Indiana Field. C. E. Wommer's No. 1 in the northeast corner of the S. T. Morgan farm, SE, Section 26, Washington Township, Pike County, reported had 700,000 feet of gas. Top of sand found at 1,132 feet and drilled 18 feet in to a total depth of 1,150 feet. Same party drilled a dry hole in the southwest corner of the R. M. Craig farm, NE, Section 23, Jefferson Township, same county at a depth of 1,100 feet.

Alma Glenn is reported to be starting a well near the town of Gerald, in Perry County, in the extreme southern part of Indiana.

ILLINOIS

No completions were reported from the Illinois fields, all work being confined to abandoning some old wells scattered over the State. In Bridgeport Township, Lawrence County, the Ohio Oil Co. abandoned No. 3 on the Perry King farm, NW, Section 31. Same company abandoned Nos. 4, 28 and 47 on the Joseph B. Lewis farm, SW, Section 29, Petty Township, same county. Silurian Oil Co. pulled out old Nos. 4 and 7 William Crump farm, SE, Section 19, same township.

Zeppenfeld & Priwers abandoned No. 1 S. A. and O. L. Dickey farm, NE, Section 28, Sugar Loaf Township, St. Clair County, southeast of East St. Louis.

KENTUCKY

Kentucky Natural Gas Co. has completed a dry hole in No. 8 on the J. T. Griffith farm, in Ohio County, the gas being found in the Barlow sand.

Four completions were made in the Owensboro Field, in Daviess County, three being producers and one dry hole. Hupp & Duff's No. 2 well in the southwest corner of the W. R. Jones farm, in the Jones Pool, which produced an initial of 20 bbls. at a depth of 746 feet. Ellis & Ashby's No. 3 in the southeast corner of the Myrtle Howard farm, in the Howard Pool, produced 15 bbls. initially at a depth of 737 feet. S. H. Russell and others' No. 1 well, 600 feet from the south line and 200 feet from the east line of the J. O. Neel farm, produced 10 bbls. the first 24 hours.

In the Cane Run Pool, of Daviess County, Brenner & Adams' No. 1 well, 150 feet from the north line and 500 feet from the east line of the I. J. Hazelrig farm, that was shut down for a period at a depth of 450 feet, then drilled to a depth of 700 feet, came in a dry hole.

MICHIGAN

Operations are expanding in the Central Michigan Field. This is caused by the late finds. The two biggest wells in Michigan are at opposite ends of the Isabella-Midland proven field and each has been struck within the past couple of months. One is the Woods farm gusher in Vernon Township, Isabella County, about 12 miles north of Mount Pleasant, and the other on the Purtel farm, in Section 15, Greendale Township, Midland County, approximately 13 miles east of Mount Pleasant. Between these two wells most of the developments of this territory have centered since the first oil producer was found in the western part of Midland Township, Midland County. Until the past few months a 300 or 400-bbl. well was considered a "great find." Only a few larger wells had been located, the best made 1,500 bbls. News of a 500-bbl. well was sensational. Now the record is two 2,500-bbl. wells and wells of 750 and 1,500 bbls. are being drilled in frequently. The boundaries of the old proven field have been pushed far out in the past few months. New derricks are popping up in the east and to the north and in wildcat sections.

The two late gushers are centered in the far East Field, in Greendale Township, Midland County, and approximately 3 miles east of the Chippewa Pool. They are both owned by the Pure Oil Co., one on the Purtell farm, Section 16, Greendale Township, Midland County, and which is now the Pure Oil Co.'s tank farm. This well struck the pay in the Dundee formation and the well made 1,200 bbls., then was drilled deeper and showed an initial of 2,500 bbls. The second well which is also owned by the Pure Oil Co. is No. 1, on the Iosco land, in Section 16, just west of the discovery well of the East Pool.

Probably there is no better sign of the stimulated activity in the Isabella-Midland Field than the number of permits to drill new wells issued the past week. Several of the projects already have been started. Among the late drilling permits given were: Pure Oil Co.'s No. 2 George Lilly farm, Section 18, Chippewa Township, Isabella County; Wellman Oil Co.'s No. 1 John Bolen farm, Section 14, Greendale Township, Midland County; Apache Oil Co.'s No. 1 Frank Epple farm, Section 20, Denver Township, Isabella County; Gas Producers, Inc.'s No. 1 State Bank land, Section 5, Broomfield Township, same county; Old Dutch Refining Co.'s No. 1 Ben Loomis farm, Section 16, Vernon Township, same county; Pure Oil Co.'s No. 2 Purtell farm, Section 15, Greendale Township, Midland County, and the same company's No. 1 Mullett farm, same section and township.

Field Pickups

The wildcat venture of the Pacific Oil & Gas Co. on the Ottaway farm, Section 26, Porter Township, Midland County, approximately 10 miles southeast of the

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DON'T MISS AN ISSUE

The OIL and GAS JOURNAL

TULSA, OKLA.

Struble well, is reported to have had a nice showing, but in giving the well a shot it exploded prematurely wrecking the hole. The well is being worked on in an attempt to salvage the project which had flowed oil several times.

At a meeting of directors of the Mount Pleasant Oil & Gas Co., it was decided to abandon No. 2 on the Thompson-Bortz farm, Section 12, Chippewa Township, Isabella County. No. 1 same farm, has been pulled out. Gibson-Johnson-Borden abandoned No. 2 Cole farm, Section 19, Denver Township, same county. Michigan Oil & Gas Corp. abandoned No. 3 Marthey farm, same section.

The Pure Oil Pipe Line Co.'s 16.5-mile pipe line from the Vernon Field, in Isabella County, to its tank farm in Greendale Township, Midland County, has been completed and put in service. A booster station was erected near US-27 to push the oil through the line. Exactly 30 days from the time the big Woods well came in the pipe line company connected the line with the tank farm.

The E. Brown Development Co. has shut down on top the gas sand in No. 1, on the Campbell farm, NE NE, Section 35, Vernon Township, Isabella County.

SOUTHEAST MICHIGAN

In Wayne County, Van Buren Township, in southeastern Michigan, G. E. LeVeque's No. 2 Traskos farm, SE, Section 33, was dry at 120 feet, and No. 3 same farm, showed 8,000 feet of gas. Same parties' No. 1 Bird farm, same section, was a dry hole at 116 feet, all drilled for the shallow gas formation.

KINLEY SHOOTS OUT RUMANIAN GAS FIRE

Word has just been received from Rumania that M. M. Kinley, fire fighter of Tulsa, has succeeded in shooting out the fire of the No. 160 well of the Romano-Americana Co. in the Moreni Field that has been burning unrestricted since May 28, 1929.

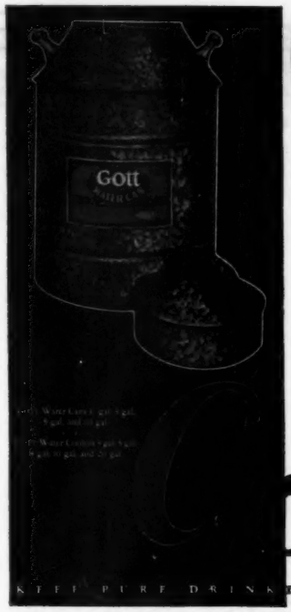
Having extinguished the fire, Mr. Kinley has further contract to put the well under some form of control and is now engaged in this work. Whether attempt will be made to run a new string of casing and cap the well and produce it or the well is to be killed by mudding is not definitely known, but examination of the condition of the hole and the surrounding property will determine what method can best be followed.

During the long period while this well has been burning a great deal of the original casing has been completly destroyed and blown out of the hole and consumed in the flames. In addition to this a vast crater has been formed around the mouth of the well and the gas has channeled across to numerous other openings where it has also been escaping and burning.

These unfavorable conditions at the well will make the final task of subduing it quite difficult, but it is understood that the volume of gas being produced has been reduced from about 150,000,000 feet daily to around 70,000,000 feet and there has been some reduction in the well head pressure also.

It was suggested at one time that mud be pumped into the crater around the well and into the hole itself to completely kill the flow of gas and after this has been done it would be possible to fish out the remaining portions of the old strings of casing and run new pipe. The well could then be cleaned out and put on production.

Now that the fire is out there still remains considerable danger for this gas is heavier than air and will settle to earth and flow down the valley in which the property is located and might become again ignited if precaution to prevent such a mishap is not taken. This was one of the reasons why Rumanian engineers at first objected to the fire being shot out for they were afraid that the gas would spread over the country for some distance from the well and become ignited again and at the same time set fire to other properties and endanger life, for many people live in the valley in which this oil field is located.



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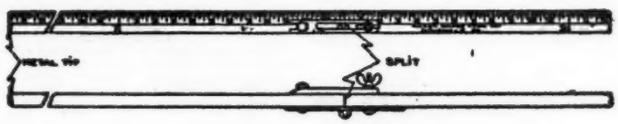

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Read the Classified Bargains on pages 76 and 77 of this week's issue.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of July

Runs

	Month (bbls.)	Dy.av. (bbls.)
Prairie P. L. Co.*	554,900	17,900
Gulf P. L. Co.	1,676,278	54,041
Texas P. L. Co.	778,762	25,121
Magnolia P. L. Co.	1,944,919	62,710
Empire P. L. Co.	2,454,362	79,173
Cosden P. L. Co.	634,878	20,480
Stanolind P. L. Co.*	3,106,200	100,200
Oklahoma P. L. Co.	2,277,149	73,456
Other lines*	6,138,000	198,000
Total July	19,563,548	631,081
Total June	20,005,456	666,848
Difference	441,908	35,767

Shipments

Prairie P. L. Co.	2,626,499	84,726
Gulf P. L. Co.	1,674,036	54,001
Texas P. L. Co.	880,766	28,412
Magnolia P. L. Co.	1,548,704	49,958
Empire P. L. Co.	2,607,823	84,123
Cosden P. L. Co.	744,909	24,029
Stanolind P. L. Co.	3,738,197	120,587
Oklahoma P. L. Co.	2,353,122	75,907
Other lines*	6,975,000	225,000
Total July	23,149,033	746,743
Total June	22,426,573	747,552
Difference	722,461	809

Stocks

Prairie O. & G. Co.*	37,460,000
Gulf P. L.-Gypsy Oil Co.	9,121,261
The Texas Company	3,566,327
Magnolia Petroleum Co.	6,642,981
Empire P. L. Co.	4,820,727
Mid-Continent Pet. Corp.	3,662,877
Stanolind Crude Oil Pur. Co.*	18,102,000
Oklahoma P. L. Co.	2,225,653
Carter Oil Co.	7,954,854
Other lines*	17,540,000
Total July	111,096,680
Total June	114,630,501
Difference	3,533,821

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF AUGUST

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for July and August:

	July, 1931	Aug., 1931
Nat. Transit	133,220.85	121,756.53
S. W. Pa. P. L.	71,451.01	64,160.09
Eureka P. L.	289,307.41	274,238.96
Buckeye P. L. (Macksburg)	243,334.42	225,597.43
Buckeye P. L. (Cleveland)	11,493.40	11,149.05
Buckeye P. L. (Lima, etc.)	86,516.97	70,669.93
Indiana P. L.	2,402.03	2,600.03
Cumberland P. L.	164,965.59	146,239.07
N. Y. Transit	26,816.95	26,817.39
Tidewater P. L.	25,578.82	23,868.07
Pure Oil	184,069.94	217,534.86
Stoll Oil Ref.		58,043.70
Bradford Transit	324,264.05	353,931.05
Total	1,572,421.44	1,596,596.16
Daily average	50,722.24	51,503.10

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, 1931	Aug., 1931
Nat. Transit	545,129.48	572,837.36
S. W. Pa. P. L.	444,257.19	470,477.88
Eureka P. L.	389,088.42	403,173.50
Buckeye P. L. (Macksburg)	242,021.51	209,652.53
Buckeye P. L. (Cleveland)	1,950.36	2,191.00
Buckeye P. L. (Lima, etc.)	1,906,783.68	1,965,006.60
Indiana P. L.	975,959.98	1,146,141.55
Cumberland P. L.	115,573.69	97,247.87
Southern P. L.	71,576.50	67,327.53
N. Y. Transit	173,789.42	184,459.52
Northern P. L.	181,895.41	194,193.95
Tidewater P. L.	403,796.82	557,863.79
Pure Oil	189,026.80	233,792.38
Bradford Transit	482,852.88	365,531.21
Tuscarora Dev.	436,907.19	479,254.03
Total	6,560,609.33	6,949,150.80
Daily average	211,632.56	224,166.16

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of July and August:

	July, 1931	Aug., 1931
Nat. Transit	657,463.03	709,462.64
S. W. Pa. P. L.	436,536.86	437,987.83
Eureka P. L.	1,741,116.21	1,604,025.48
Buckeye P. L. (Macksburg)	325,616.77	304,905.35
Buckeye P. L. (Cleveland)	38,005.67	41,579.11
Buckeye P. L. (Lima, etc.)	3,110,772.07	2,982,405.14
Indiana P. L.	527,931.01	507,338.32
Cumberland P. L.	636,001.14	621,498.00
Southern P. L.	214,438.42	206,524.98
N. Y. Transit	101,414.97	117,399.23
Northern P. L.	218,880.21	247,413.61
Tidewater P. L.	1,009,357.89	862,114.87
Pure Oil	424,712.11	410,582.35
Tuscarora	12,766.39	12,283.56
Bradford Transit	114,827.03	126,446.26
Total	9,569,849.78	9,192,457.33
Decrease	333,499.75	377,392.45

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of July and August, showing gross stocks of the above fields:

	July, 1931	Aug., 1931
Pennsylvania	3,439,601.00	3,104,338.44
Lima	787,866.84	711,235.85
Kentucky	646,541.50	632,038.36
Mid-Continent	4,264,314.47	4,343,664.94
Illinois	18,123.10	
Michigan	413,402.87	401,179.74
Total	9,569,849.78	9,192,457.33

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
Jan.	52,904	51,749	75,907	53,939
Feb.	57,002	51,833	79,256	55,163
Mar.	57,485	54,252	76,688	54,331
Apr.	56,812	55,444	84,526	54,914
May	62,067	59,902	70,546	53,344
June	58,230	58,833	75,420	54,110
July	57,144	66,087	68,921	50,723
Aug.	57,745	66,087	54,291	51,503
Sept.	53,487	67,315	56,595	
Oct.	58,100	76,093	53,179	
Nov.	53,865	74,521	52,333	
Dec.	52,025	74,562	53,999	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
Jan.	146,485	165,721	217,623	175,369
Feb.	167,368	159,387	224,355	183,494
Mar.	158,882	161,474	228,846	189,508
Apr.	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,155
July	189,470	194,763	207,094	211,633
Aug.	192,853	194,946	205,506	224,166
Sept.	194,138	201,314	193,999	
Oct.	176,000	191,867	157,675	
Nov.	176,893	202,742	146,638	
Dec.	173,572	186,257	143,001	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
Jan.	7,596,564	12,220,045	11,831,092
Feb.	8,738,836	12,991,581	11,506,483
Mar.	9,602,058	13,247,217	11,012,162
Apr.	8,978,172	13,233,961	11,044,487
May	8,903,560	13,052,953	10,728,239
June	8,921,275	13,396,855	9,903,349
July	9,211,565	13,268,562	9,569,849
Aug.	9,440,643	13,047,051	9,192,457
Sept.	9,443,067	12,812,018	
Oct.	9,441,101	12,437,555	
Nov.	9,568,538	11,851,380	
Dec.	11,253,953	11,751,952	

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, September 1	529,505.84
Runs from wells	452,755.40
Other receipts	26,243.47
Regular deliveries	351,280.47
Other deliveries	178,235.56

The amount of Illinois oil run by the Tidewater Pipe Co. in August was 23,868.07 bbls. Deliveries were 41,960.59 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1931—		
August	476,623.56	393,231.40
1930—		
January	543,387.95	498,293.91
February	548,416.33	414,536.59
March	631,944.49	469,179.59
April	530,074.22	509,304.60
May	605,147.37	504,069.86
June	572,662.57	468,658.81
July	604,529.45	388,454.47
August	594,642.12	375,742.42
September	457,001.11	371,691.62
October	478,442.12	320,688.72
November	422,794.68	355,402.12
December	556,418.78	362,719.56
1931—		
January	468,429.04	669,573.19
February	429,284.54	467,262.85
March	424,638.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13
July	520,009.38	289,219.05

Tidewater Pipe Co., Ltd., also delivered in August, 126,517.13 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	7,413	3,742	28,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,490	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,433	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	8,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	3,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.. ..	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.. ..	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	39,032	4,484	145,613	33,355	25,097	247,581	3,419	9,322	5,548	3,000	29,200	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,234	.. ..	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548
November	29,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129
January	17,613	13,519	154,225	32,903	30,613	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	14,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	15,935	141,160	26,290	21,129	232,161	4,065	2,580	.....	1,968	8,613	240,774
April	25,000	10,533	105,000	29,767	25,533	215 *33	2,733	3,400	.....	.....	6,133	221,866
May	30,129	8,774	107,000	25,452	26,710	198,065	.. ..	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	20,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
August:	Month	18,770,466	17,162,034	25,069,598	3,491,520	1,700,102	2,151,120	3,193,341	3,417,000	74,955,181
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,417,909
September:	Month	17,984,306	16,509,120	22,111,822	3,405,510	1,583,280	2,008,080	3,239,010	3,396,000	71,237,128
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,517,913	1,636,552	2,142,885	3,225,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,035,223	3,459,330	1,557,870	3,136,943	2,957,100	3,222,000	68,419,695
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,654
December:	Month	17,786,728	15,057,103	21,810,359	3,432,661	1,590,951	2,157,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,646
1931—										
January:	Month	16,485,738	14,850,952	20,019,212	3,432,475	1,574,955	2,135,037	2,966,142	3,274,000	64,338,513
	Daily average	531,798	479,063	645,781	110,725	50,805	68,872	95,682	105,839	2,091,566
February:	Month	14,930,932	13,531,980	18,957,571	3,241,016	1,402,492	1,981,616	2,747,024	3,129,000	60,031,431
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,142,479
March:	Month	16,364,842	16,627,687	22,463,619	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,646
	Daily average	527,898	536,377	724,310	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,641	16,815,990	26,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,384,239
	Daily average	526,785	559,255	896,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,333,867	28,708,684	3,241,366	1,446,274	2,232,568	3,098,419	3,190,000	75,800,138
	Daily average	530,612	559,157	926,086	107,786	46,654	72,018	99,949	102,900	2,445,169
June:	Month	15,641,436	16,678,200	29,139,833	3,175,440	1,344,450	1,850,511	2,986,200	3,166,000	73,982,070
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,069
July:	Month	16,093,322	16,467,789	33,827,213	3,090,762	1,387,430	1,716,730	2,905,909	3,341,000	78,729,155
	Daily average	519,139	531,219	1,091,200	99,702	44,530	55,345	93,739	107,774	2,539,650
Total 12 months		202,663,783	192,609,016	295,647,402	40,521,932	18,005,821	24,581,606	36,237,263	39,837,000	850,104,873